Note remarks

: MAC 11,1a18 : 04.09.90 Test sheet Edition : 2.5.90 Replaces

Test oil : ISO-4113

: 0 402 746 849 Combination no.

Injection pump

Pump designation : PES6P120A720RS7135

: 0 412 726 807 EP type number

Governor

: RQV325...850PA878-10 Governor design.

: 0 421 815 209 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

: E6 275 4VH Engine

: 202.0 1st version kW : 1700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 4,3 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm

: 2.75...2.85 : (2.70...2.90)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 18.3...18.5

100 s: (18.0...18.8)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm : 4.5...4.7 Del.quantity cm3/ : 3.2...3.8

100 s: (3.0...4.0)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed : 1.20...1.40 travel mm

rpm : 450 2nd speed

: 2.80...3.10 travel mm

: 850 3rd speed rpm

: 6.20...6.40 travel mm

1000 4th speed rpm

: 7.70...7.90 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 900

Anerus ... Del.quantity 1000 : 183.0...185.0

: (180.0...188.0)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.90 rpm : 900...910 Speed 2nd rack travel in: 4.00

rpm : 1025...1055 Speed

4th rack travel in: 1100

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

: 275 Speed rpm Minimum rack trave: 6.10 rpm

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

: ? Dimension a mm

Torque control curve - 1st version

: 850 1st speed rpm

Rack travel in m: 11.90...12.90

: 700 2nd speed rpm

Rack travel in m: 12.80...12.90

: 600 3rd speed rom

Rack travel in m: 13.00...13.10

: 500 4th speed rpm

Rack travel in m: 0.00...12.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 rom hPa : 900 Pressure

: 13.00...13.10 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50 2nd pressure hPa : 225 Rack travel in m: 11.00...11.10

3rd pressure hPa : 385

Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm : 600

Del.quantity cm3/: 219.5...225.5 1000 s: (216.5...228.5)

cm3 : 8.00 1000 s: (12.0) Spread

Aneroid pressure h: 900 : 850 Speed rpm

Del.quantity cm3/: 159.0...161.0 *

1000 s: (141.5...162.5)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 154.0...158.0 1000 s: (152.0...160.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

rpm : 900...910 Speed

INTERMEDIATE RATED SPEED

Rack travel in mm: 11.30.

: 805 Speed rpm

Rack travel in mm: 4.60

Speed rpm

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 195.0...235.0 1000 s: (185.0...245.0) Rack travel in mm: 10.30...10.50

LOW IDLE

: 325 Speed rpm

Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0) Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MACK # 313GC5184-P4

Delivery-valve spring pre-tension 3.0...3.2 mm.

* This test specification applies only

to the engine/nozzle-and-holder

assemblies on an injection-pump test

bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

: MAC 11,1a13 : 04.09.90 Test sheet Edition : 02.05.90 Replaces Test oil : ISO-4113

Combination no. : 0 402 746 850

Injection pump

Pump designation : PES6P120A720RS7135

: 0 412 726 807 EP type number

Governor

: RQV325...900PA848-24 Governor design.

: 0 421 815 207 Governer no.

Customer-spec. information

Customer : MACK TRUCKS INC.

Engine : E6-350

1st version kW : 261.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 24.8...25.0

100 s: (24.5...25.3)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 3.9...4.5 100 s: (3.7...4.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 325 : 1.20...1.40 travel mm

rpm : 450 2nd speed

: 3.10...3.30 travel mm

rpm : 850 3rd speed

: 5.90...6.10 travel mm

: 1000 4th speed rpm

: 7.50...7.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 1200

Del.quantity : 240.3...253.5)

: 5.00 cm3 Spread

: (9.00) 1000

RATED SPEED

1st version Control Lever

position degrees: 56...64

Testina:

1st rack travel in: 13.80 rpm : 950...960 Speed 2nd rack travel in: 4.00

rpm : 1075...1105 Speed

4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 7...15

Testing:

Speed : 275 rpm Minimum rack trave: 6.60 Speed : 325 rpm

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

rpm : 900 1st speed

Rack travel in m: 14.80...14.90

2nd speed rpm : 625

Rack travel in m: 15.20...15.30

: 700 3rd speed rpm

Rack travel in m: 15.00...15.10

4th speed rpm : 500

Rack travel in m: 0.00...14.90

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 625 rpm hPa : 1200

Pressure

Rack travel mm : 15.20...15.30

Measurement

1/min: 625 Speed

1st pressure hPa :-

Rack travel in m: 8.30...8.70

2nd pressure hPa : 310

Rack travel in m: 10.20...10.30 3rd pressure hPa : 710

Rack travel in m: 13.70...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 625 Del.quantity cm3/: 271.0...277.0 1000 s: (268.0...280.0)

cm3 : 8.00 1000 s: (12.0) Spread

Aneroid pressure h: 1200 Speed rpm

Del.quantity cm3/: 159.0...161.0 * 1000 s: (141.5...162.5)

Aneroid pressure h:

Speed rpm : 400 Del.quantity cm3/ : 130.5...134.5 1000 s: (128.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80

rpm : 950...960 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 130.0...170.0 1000 s: (120.0...180.0)

Rack travel in mm : 8.30...8.70

LOW IDLE

rpm : 325 Speed

Rack travel in mm: 4.90...5.10 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5184-P10

Delivery-valve spring pre-tension 3.0...3.2 mm.

This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment,

check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: MAC 11,1a14 : 04.09.90 Test sheet Edition : 02.05.90 Replaces : ISO-4113 Test oil

: 0 402 746 851 Combination no.

Injection pump

Pump designation : PES6P120A720RS7135 EP type number : 0 412 726 807

Governor

: RQV325...850PA848-25 Governor design.

: 0 421 815 208 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

: E6 275 4VH Engine

: 202.0 1st version kW : 1700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 Prestroke mm : (2.70...2.90)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 18.3...18.5

100 s: (18.0...18.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.02nd speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm

rpm : 450 2nd speed

travel mm : 2.80...3.10

: 850 3rd speed rpm

: 6.20...6.40 travel mm

1000 4th speed rpm

: 7.70...7.90 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

Aneroid pressure h: 900

: 5.00 : (9.00) Spread cm3

1000

RATED SPEED

1st version Control lever position degrees: 50...58 Testina: 1st rack travel in: 10.90 rpm : 900...910 Speed 2nd rack travel in: 4.00 rpm : 1020...1050 Speed 4th rack travel in: 1100 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 7...15 Testina: Speed rpm Minimum rack trave: 6.00 : 325 Speed rpm Rack travel in mm : 4.40...4.60 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version rpm : 850 1st speed Rack travel in m: 11.90...12.00 rpm : 700 2nd speed Rack travel in m: 12.50...12.70 rpm : 600 3rd speed Rack travel in m: 12.90...13.10 rpm : 500 4th speed Rack travel in m: 0.00...12.80 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 900 : 13.00...13.10 Rack travel mm Measurement Speed $1/\min : 600$ 1st pressure hPa : -Rack travel in m: 9.90...10.30 2nd pressure hPa : 225 Rack travel in m: 11.00...11.10 3rd pressure hPa : 385 Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.90 Speed rpm : 900...910

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 195.0...235.0 1000 s: (185.0...245.0) Rack travel in mm : 9.90...10.30

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.40...4.60
Del.quantity cm3/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5184-P2

Delivery—valve spring pre—tension 3.0...3.2 mm.

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 12,0 a3 Test sheet : 04.09.90 Edition : 2.5.90 Replaces Test oil : ISO-4113 : 0 402 746 852 Combination no. Injection pump Pump designation : PES6P120A720RS7157 : 0 412 726 814 EP type number Governor Governor design. : RQV325...900PA909K

: 0 421 815 210 Governer no. Customer-spec, information : MACK TRUCKS Customer

: E7-400 Engine

: 298.0 1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

: 1 Time to cyl. no.

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 15.80...15.90

Del.quantity cm3/: 27.5...27.7

100 s: (27.2...28.0)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm : 5.1...5.3

Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm 2nd speed rpm : 450

: 2.80...3.20 travel mm

3rd speed : 650 rpm

5.60...5.80 travel mm

: 900 4th speed rpm

: 8.30...8.50 travel mm

1100 5th speed rpm

: 10.30...10.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 1200

: 275.0...277.0 1000 : (272.0...280.0) Del.quantity

: 5.00

Spread cm3 1000 : (9.00)

RATED SPEED 1st version Control lever position degrees: 58...56 Testina: 1st rack travel in: 14.80 rpm : 940...950 Speed 2nd rack travel in: 4.00 rpm : 1105...1135 Speed 4th rack travel in: 1200 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rpm : 275 Minimum rack trave: 6.30 : 325 Speed rpm Rack travel in mm : 5.10...5.30 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 15.80...15.90 nd speed rpm : 625 Rack travel in m: 15.20...15.40 2nd speed : 700 3rd speed rpm Rack travel in m: 15.40...15.60 rpm : 500 4th speed Rack travel in m: 0.00...13.50 Aneroid/Altitude Compensator Test 1st version Setting : 900 Speed rpm Pressure hPa : 1200 Rack travel mm : 15.80...15.90 Measurement 1/min: 900 Speed

1st pressure hPa : -Rack travel in m: 8.50...8.90 2nd pressure hPa : 325 Rack travel in m: 10.20...10.30 3rd pressure hPa : 790 Rack travel in m: 13.80...14.20 START CUT-OUT

1/min: 275 (285) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 625 Speed rpm Del.quantity cm3/: 302.5...308.5 1000 s: (299.5...311.5) : 8.00 Spread cm3 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 850 Del.quantity cm3/ : 159.0...161.0 * 1000 s: (136.5...157.0) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 157.5...161.5 1000 s: (155.5...163.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 14.80 rpm : 940...950 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 180.0...220.0 1000 s: (170.0...230.0) Rack travel in mm : 10.80...11.40

LOW IDLE

Speed rpm : 325 Rack travel in mm : 5.10...5.30 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) Spread : 8.00 cm3 1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P6

Delivery-valve spring pre-tension 3.0...3.2 mm.

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Bow dimension: Sliding-sleeve position = 37.0 mm

Note remarks

: MAC 12,0 a4 : 04.09.90 Test sheet Edition : 02.05.90 Replaces : ISO-4113 Test oil

Combination no. : 0 402 746 853

Injection pump

Pump designation : PES6P120A720RS7157

: 0 412 726 814 EP type number

Governor

Governor design. : RQV325...900PA909-1K

: 0 421 815 211 Governer no.

Customer-spec. information

Customer : MACK TRUCKS

Engine : £7-350

1st version kW : 261.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 23.1...23.3

100 s: (22.9...23.5)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm :

1.20...1.40 travel mm

rpm : 450 2nd speed

travel mm : 2.80...3.20

3rd speed : 650 rpm

: 5.60...5.80 travel mm

: 900 4th speed rpm

: 8.30...8.50 travel mm

: 1100 5th speed rpm

: 10.30...10.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1200

Anerous Del.quantity 1000 : 231.5...233.5

: (229.5...235.5)

: 5.00 Spread cm3

: (9.00) 1000

RATED SPEED 1st version Control lever position degrees: 58...56 Testina: 1st rack travel in: 12.60 Speed rpm : 940...950 2nd rack travel in: 4.00 rpm : 1080...1110 Speed 4th rack travel in: 1200 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rpm Minisum rack trave: 5.90 Speed rpm : 325 Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version : 900 1st speed rpm Rack travel in m: 13.60...13.70 rpm : 625 2nd speed Rack travel in m: 13.30...13.50 rpm : 500 3rd speed Rack travel in m: 0.00...12.00 Aneroid/Altitude Compensator Test 1st version Setting : 900 Speed rpm hPa : 1200 Pressure : 13.60...13.70 Rack travel mm Measurement 1/min: 900 Speed 1st pressure hPa : -Rack travel in m: 8.00...8.40 2nd pressure hPa : 325 Rack travel in m: 9.40...9.50 3rd pressure hPa : 685

Rack travel in m: 12.10...12.50 START CUT-OUT

1/min: 275 (285)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 : 625 Speed rpm Del.quantity cm3/: 263.0...269.0 1000 s: (260.0...272.0)

cm3 : 8.00 Spread

1000 s: (12.0) Aneroid pressure h: 1200

Speed rpm : 850
Del.quantity cm3/ : 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/: 153.0...157.0 1000 s: (151.0...159.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.60 rpm : 940...950 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 170.0...210.0 1000 s: (160.0...220.0) Rack travel in mm: 10.30...10.90

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.70...4.90

Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

cm3 : 8.00 1000 s: (12.00) Spread

Remarks:

: MACK # 313GC5185-P2

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection pump test bench: setting for test equipment, check value for engine equipment. Bow dimension: Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Speed

Note remarks

Test sheet : MAC 11,1 f1 : 04.09.90 Edition : 2.5.90 Replaces : ISO-4113 Test oil

: 0 402 746 861 Combination no.

Injection pump

Pump designation : PES6P120A720RS7183

: 0 412 726 825 EP type number

Governor

Governor design. : RQV325...875PA848-26

: 0 421 815 212 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

: EM 6-300L Engine

: 183.0 1st version kW : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm

: 2.75...2.85 : (2.70...2.90)

Rack travel in mm: 6.00...8.00

: 1- 5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasina

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 875 1st speed

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.7...4.9 Del.quantity cm3/ : 4.1...4.7 100 s: (3.9...4.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 325 : 1.20...1.40 travel mm

2nd speed rpm : 450

: 2.50...2.80 travel mm

rpm : 600 3rd speed

: 4.10...4.30 travel mm

rpm : 875 4th speed

: 6.90...7.10 travel mm

rpm : 1000 5th speed

travel mm : 8.20...8.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 875 Speed Aneroid pressure h: 1500

: 209.0...211.0 Del.quantity

1000 : (206.0...214.0)

Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 55...63 Testing: 1st rack travel in: 10.20 rpm : 915...925 Speed 2nd rack travel in: 4.00 rpm : 1000...1030 Speed 4th rack travel in: 1150 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm Minimum rack trave: 6.30 rpm Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 11.20...11.30 rpm : 510 2nd speed Rack travel in m: 16.60...16.80 : 700 3rd speed man Rack travel in m: 13.20...13.40 4th speed rpm : 600 Rack travel in m: 15.20...15.60 : 420 5th speed rpm Rack travel in m: 0.00...16.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 510 rpm hPa : 1500 Pressure : 16.60...16.80 Rack travel mm Measurement 1/min: 510 Speed 1st pressure hPa : -Rack travel in m: 8.70...9.10 2nd pressure hPa : 435

Rack travel in m: 10.80...11.00 3rd pressure hPa : 795 Rack travel in m: 14.60...15.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 510 Del.quantity cm3/ : 308.0...314.0 1000 s: (305.0...317.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1500 Speed rpm Del.quantity cm3/: 199.0...201.0 * 1000 s: (167.0...192.0) Aneroid pressure h: Speed rpm : 400 Del.quantity cm3/ : 154.0...158.0 1000 s: (152.0...160.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.20 rpm : 915...925 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 150.0...170.0 1000 s: (145.0...175.0) Rack travel in mm : 8.70...9.10 LOW IDLE Speed rpm : 325
Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 41.0...47.0 1000 s: (39.0...49.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : MACK # 313GC5174-P6 Delivery-valve spring pre-tension 3.0...3.2 mm. * This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Note remarks

: MAC 11.1 f : 04.09.90 Test sheet Edition : 02.05.90 Replaces Test oil : ISO-4113

Combination no. : 0 402 746 862

Injection pump

Pump designation : PES6P120A720RS7183 : 0 412 726 825

EP type number

Governor

Governor design. : RQV325...875PA878-11

: 0 421 815 213 Governer no.

Customer—spec. information

: MACK TRUCKS Customer

: EM 6-300L Engine

1st version kW : 183.0 : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm

: 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 6.00...8.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm : 4.6...4.8

Del.quantity cm3/: 4.1...4.7 100 s: (3.9...4.9)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.20...1.40 travel mm

2nd speed : 450 rpm

2.50...2.80 travel mm

: 600 3rd speed man

: 4.10...4.30 travel mm

4th speed : 875 rpm

: 7.30...7.50 travel mm : 1000

5th speed rpm

travel mm : 8.70...9.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 1500

: 209.0...211.0 Del.quantity

1000 : (206.0...214.0)

: 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 55...63 1st version Testina: rpm 1st rack travel in: 10.20 rpm : 915...925 Speed 2nd rack travel in: 4.00 cm3 Spread Speed rpm : 1000...1030 4th rack travel in: 1150 Speed rom : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 10...18 Speed rpm Testing: Speed : 275 rom Minimum rack trave: 6.30 rpm **BREAKAWAY** Rack travel in mm : 4.60...4.80 1st version CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Speed Dimension a mm Torque control curve - 1st version : 875 1st speed rpm Speed Rack travel in m: 11.20...11.30 rpm : 510 2nd speed rpm Rack travel in m: 16.60...16.80 Speed rom rpm : 700 3rd speed Rack travel in m: 13.30...13.50 rpm : 600 4th speed Rack travel in m: 15.50...15.70 : 450 5th speed rpm Rack travel in m: 0.00...16.60 Aneroid/Altitude Compensator Test LOW IDLE 1st version Speed rpm Setting rpm : 510 hPa : 1500 Speed rpm Pressure Rack travel mm : 16.60...16.80 Spread Measurement 1/min: 510 Remarks: Speed 1st pressure hPa : -Rack travel in m: 8.70...9.10 Delivery-valve spring pre-tension 3.0...3.2 mm. 2nd pressure hPa : 435

Rack travel in m: 10.80...11.00 3rd pressure hPa : 795 Rack travel in m: 14.60...15.00 FUEL DELIVERY CHARACTERISTICS Aneroid pressure h: 1500 : 510 Del.quantity cm3/: 308.0...314.0 1000 s: (305.0...317.0) : 8.00 1000 s: (12.0) Aneroid pressure h: 1500 Speed rpm : 875 Del.quantity cm3/ : 199.0...201.0 * 1000 s: (167.0...192.0) Aneroid pressure h: -: 400 Del.quantity cm3/: 154.0...158.0 1000 s: (152.0...160.0) 1mm rack travel less than full load rack tr: 10.20 rpm : 915...925 INTERMEDIATE RATED SPEED Rack travel in mm: 11.20 : 805 Rack travel in mm: 4.70 : 300 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 165.0...205.0 1000 s: (160.0...210.0) Rack travel in mm : 8.70...9.10 : 325 Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 41.0...47.0 1000 s: (39.0...49.0) cm3 : 8.001000 s: (12.00) : MACK # 313GC5174-P8 * This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

Test sheet : MAC 11,1 e1 : 04.09.90 Edition : 02.05.90 Replaces Test oil : ISO-4113

Combination no. : 0 402 746 864

Injection pump

Pump designation : PES6P120A720RS7164

EP type number : 0 412 726 816

Governor

Governor design. : RQV325...900PA878-12

: 0 421 815 215 Governer no.

Customer-spec. information

Customer : MACK TRUCKS

: EC6-350 4VH Engine

1st version kW : 261.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 12.00...13.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no.

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 16.00...16.10

Del.quantity cm3/: 25.5...25.7

100 s: (25.2...26.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.02nd speed Rack travel in mm : 4.3...4.5

Del.quantity cm3/: 3.9...4.5 100 s: (3.7...4.7)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.20...1.40 travel mm

2nd speed rpm : 450

: 3.00...3.40 travel mm

rpm : 850 3rd speed

: 5.90...6.10 : 1000 travel mm

4th speed rpm

: 7.40...7.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 1200

Aneronu p. Del.quantity 1000 : 255.5...257.5 : (252.5...260.5)

: 5.00 cm3 Spread

1000 : (9.00) RATED SPEED

1st version

Control Lever

position degrees: 55...63

Testina:

1st rack travel in: 15.00

rpm : 950...960 Speed

2nd rack travel in: 4.00

rpm : 1115...1145 Speed

4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 10...18

Testing:

Speed rpm

Minimum rack trave: 5.90

Speed Rack travel in mm : 4.30...4.50

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

rpm : 900 1st speed

Rack travel in m: 16.00...16.10

rpm : 625 2nd speed

Rack travel in m: 16.50...16.70

rpm : 550 3rd speed

Rack travel in m: 0.00...16.40

Aneroid/Altitude

Compensator Test

1st version

Setting

: 625 Speed rom hPa : 1200

Pressure

: 16.50...16.70 Rack travel mm

Measurement

1/min: 625 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.80

2nd pressure hPa : 265

Rack travel in m: 11.30...11.40

3rd pressure hPa : 665

Rack travel in m: 14.70...15.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 625 Speed rpm

Del.quantity cm3/: 280.0...286.0 1000 s: (277.0...289.0)

cm3 : 8.00

Spread

1000 s: (12.0)

Aneroid pressure h: 1200

Speed rpm

Del.quantity cm3/: 179.0...181.0 * 1000 s: (151.0...173.5)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 141.5...145.5 1000 s: (139.5...147.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 15.00

rpm : 950...960 Speed

INTERMEDIATE RATED SPEED

Rack travel in mm: 13.70

Speed rpm

Rack travel in mm: 5.00

Speed rpm

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...175.0

1000 s: (125.0...185.0)

Rack travel in mm : 9.40...9.80

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.30...4.50

Del.quantity cm3/: 39.0...45.0

1000 s: (37.0...47.0)

cm3 : 8.00 Spread

·1000 s: (12.00)

Remarks:

: MACK # 313GC5181P12

Delivery-valve spring pre-tension

3.0...3.2 mm.

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Note remarks

: MAC 11,1 e2 Test sheet : 04.09.90 Edition : 02.05.90 Replaces

: ISO-4113 Test oil

Combination no. : 0 402 746 865

Injection pump

Pump designation : PES6P120A720RS7164

: 0 412 726 816 EP type number

Governor

Governor design. : RQV325...875PA878-13

: 0 421 815 216 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

: EM6-275L 4VH Engine

: 205.0 1st version kW : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test Lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 12.00...13.00 Firing order : 1-5- 3- 6- 2- 4

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 19.3...19.5

100 s: (19.1...19.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm: 4.7...5.1

Del.quantity cm3/: 3.9...4.5 100 s: (3.7...4.7)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm :

1.20...1.40 travel mm

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed : 850 rpm

travel mm : 6.20...6.40

4th speed : 1000 rpm

: 7.70...7.90 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1200

Del.quantity : 193.3...(197.5)

: (9.00) 1000

RATED SPEED 1st version Control lever position degrees: 57...65 Testing: 1st rack travel in: 12.60 Speed rpm : 915...925 2nd rack travel in: 4.00 rpm : 1045...1075 Speed 4th rack travel in: 1150 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: : 275 Speed rpm Minimum rack trave: 6.20 rpm : 325 Rack travel in mm : 4.70...5.10 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 13.60...13.70 nd speed rpm : 510 Rack travel in m: 15.40...15.60 2nd speed rpm : 750 3rd speed Rack travel in m: 13.90...14.20 4th speed : 600 rom Rack travel in m: 15.10...15.30 5th speed rpm : 420 Rack travel in m: 0.00...15.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 510 rpm hPa : 1200 Pressure Rack travel mm : 15.40...15.60 Measurement Speed 1/min: 510 1st pressure hPa : -Rack travel in m: 10.70...11.10 2nd pressure hPa : 265

Rack travel in m: 12.10...12.20

3rd pressure hPa : 450

Rack travel in m: 14.20...14.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 510 Speed rpm Del.quantity cm3/: 261.0...267.0 1000 s: (259.0...269.0) cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: 1200 Speed rpm Del.quantity cm3/: 179.0...181.0 * 1000 s: (151.0...173.5) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/: 152.0...156.0 1000 s: (150.0...158.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.60 rpm : 915...925 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 12.70 : 805 Speed rom : 300 Speed rom STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 185.0...225.0 1000 s: (175.0...235.0) Rack travel in mm : 10.70...11.10 LOW IDLE Speed rpm : 325 Rack travel in mm : 4.70...5.10 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0) Spread cm3 : 8.00 1000 s: (12.00) Remarks: : MACK # 313GC5181P8 Delivery-valve spring pre-tension 3.0...3.2 mm.* This test specification applies only

to the engine/nozzle-and-holder

assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC 12,0 a5 : 04.09.90 Edition : 17.5.90 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 866 Injection pump : PES6P120A720RS7157 Pump designation : 0 412 726 814 EP type number Governor : RQV325...875PA909-2K Governor design. : 0 421 815 217 Governer no. Customer-spec. information Customer : MACK TRUCKS Engine : EM7-300L 1st version kW : 224.0 : 1750 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder assembly : 1 688 901 101 Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 17...19 A25

: 2.75...2.85 Prestroke mm (2.70...2.90) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 : 0.50 (0.75) Tolerance + - ° Time to cyl. no. : 1 BASIC SETTING 1st speed rom: 875 Rack travel in mm : 12.60...12.70 Del.guantity cm3/: 21.1...21.3 100 s: (20.9...21.5) Spread cm3 : 0.5100 s: (0.9) rpm : 325.02nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 325 1st speed 1.20...1.40 travel mm 2nd speed : 450 rpm : 2.80...3.20 travel mm rpm : 650 3rd speed : 5.60...5.80 travel mm rpm : 900 4th speed travel mm : 8.30...8.50 5th speed : 1100 rpm travel mm : 10.30...10.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 875 Speed Aneroid pressure h: 1200 Del.quantity : 211.0...215.0)

: 5.00

: (9.00)

cm3

1000

Spread

RATED SPEED 1st version Control lever position degrees: 57...55 Testina: 1st rack travel in: 11.60 rpm : 915...925 Speed 2nd rack travel in: 4.00 Speed rpm : 1050...1080 4th rack travel in: 1200 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 7...15 Testing: Speed rpm Minimum rack trave: 6.00 Speed rpm : 325 Rack travel in mm : 4.80...5.00 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version rpm : 875 1st speed Rack travel in m: 12.60...12.70 2nd speed rpm : 510 Rack travel in m: 13.60...13.80 3rd speed rpm : 400 Rack travel in m: 0.00...13.00 Aneroid/Altitude Compensator Test 1st version Settina : 510 Speed rpm hPa : 1200 Pressure Rack travel mm : 13.60...13.70 Measurement 1/min: 510 Speed 1st pressure hPa : -Rack travel in m: 8.10...8.50

2nd pressure hPa : 370 Rack travel in m: 9.50...9.60 3rd pressure hPa : 740 Rack travel in m: 12.30...12.70 START CUT-OUT 1/min: 275 (285) Speed A26

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 : 510 rpm

Del.quantity cm3/: 292.5...296.5 1000 s: (289.5...299.5)

cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200

Speed rpm : 875 Del.quantity cm3/ : 179.0...181.0 * 1000 s: (153.0...175.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 157.5...161.5 1000 s: (155.5...163.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60 rpm : 915...925 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 190.0...230.0 1000 s: (180.0...240.0)

Rack travel in mm: 10.40...11.00

LOW IDLE

rpm : 325 Speed Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P10

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Bow dimension: Sliding-sleeve position = 37.0 mmSetting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

: MAC 11,1 e4 : 04.09.90 Test sheet Edition : 8.6.90 Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 867

Injection pump

Pump designation : PES6P120A720RS7164

EP type number : 0 412 726 816

Governor

Governor design. : RQV325...900PA848-27

: 0 421 815 218 Governer no.

Customer—spec. information

: MACK TRUCKS Customer

Engine : EC6-350 4VH

1st version kW : 261.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm

: 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 12.00...13.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 16.00...16.10

Del.quantity cm3/: 25.5...25.7

100 s: (25.2...26.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.3...4.5 Del.quantity cm3/ : 3.9...4.5 100 s: (3.7...4.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.20...1.40 travel mm

2nd speed rpm : 450

: 3.00...3.40 travel mm

rpm : 850 3rd speed

: 5.90...6.10 travel mm

rpm : 1000 4th speed

: 7.40...7.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Aneroid pressure h: 1200

Del.quantity : 255.5...260.5)

: 5.00 Spread cm3

1000 : (9.00) RATED SPEED

1st version Control lever

position degrees: 55...63

Testing:

1st rack travel in: 15.00 rpm : 950...960 Speed 2nd rack travel in: 4.00

rpm : 1095...1125 Speed

4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 10...18

Testing:

Speed rpm Minimum rack trave: 5.90 Speed rom

Rack travel in mm : 4.30...4.50

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 16.00...16.10

2nd speed rpm : 625

Rack travel in m: 16.50...16.70

rpm : 550 3rd speed

Rack travel in m: 0.00...16.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 625 rom hPa : 1200 Pressure

Rack travel mm : 16.50...16.70

Measurement

1/min: 625 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.80

2nd pressure hPa : 265

Rack travel in m: 11.30...11.40

3rd pressure hPa : 665

Rack travel in m: 14.70...15.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 625 Speed rom

Del.quantity cm3/: 280.0...286.0 1000 s: (277.0...289.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: 1200 Speed rpm

Del.quantity cm3/: 159.0...161.0 * 1000 s: (151.0...173.5)

Aneroid pressure h: -

rpm : 400 Speed Del.quantity cm3/: 141.5...145.5 1000 s: (139.5...147.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 15.00

rpm : 950...960 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...175.0 1000 s: (125.0...185.0)

Rack travel in mm : 9.40...9.80

LOW IDLE

Speed rpm

Rack travel in mm : 4.30...4.50

Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5181P10

Delivery-valve spring pre-tension

3.0...3.2 mm.

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

Test sheet : MAC 11,1 e5 : 04.09.90 Edition : 09.03.90 Replaces

: ISO-4113 Test oil

: 0 402 746 868 Combination no.

Injection pump

Pump designation : PES6P120A720RS7164

: 0 412 726 816 EP type number

Governor

Governor design. : RQV325...875PA848-28

: 0 421 815 219 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

Engine : EM6-275L 4VH

: 205.0 1st version kW : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 12.00...13.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 875 1st speed

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 19.3...19.5

100 s: (19.1...19.7)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.3...4.5 Del.quantity cm3/: 3.9...4.5

100 s: (3.7...4.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm

rpm : 450 2nd speed

travel mm : 2.80...3.10

rpm : 850 3rd speed

: 6.20...6.40 travel mm

rpm : 1000 4th speed

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -1 rpm : 1110 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 1200 1st pressure hPa : Rack travel in m: 10.70...11.10 : 193.5...195.5 1000 : (191.5...197.5) Del.quantity 2nd pressure hPa : 265 Rack travel in m: 12.10...12.20 : 5.00 Spread cm33rd pressure hPa : 450 : (9.00) 1000 Rack travel in m: 14.20...14.60 RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever 1st version position degrees: 57...65 Aneroid pressure h: 1200 : 510 Testing: Speed rpm Del.quantity cm3/: 261.0...267.0 1000 s: (258.0...270.0) 1st rack travel in: 12.60 rpm : 915...925 Speed cm3 : 8.00 2nd rack travel in: 4.00 Spread Speed rpm : 1045...1075 4th rack travel in: 1150 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 400 Det.quarcity cm3/: 152.0...156.0 1000 s: (150.0...158.0) rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 BREAKAWAY Testing: Speed rpm : 275 Minimum rack trave: 5.90 Speed 1st version 1mm rack travel less than rpm Rack travel in mm : 4.30...4.50 full load rack tr: 12.60 rpm : 915...925 Speed CONSTANT REGULATION rpm : 325...520 STARTING FUEL DELIVERY Speed TORQUE CONTROL Dimension a mm :? : 100 Speed rpm Del.quantity cm3/: 185.0...225.0 1000 s: (175.0...235.0) Torque control curve - 1st version rpm : 875 1st speed Rack travel in mm : 10.70...11.10 Rack travel in m: 13.60...13.70 rpm : 510 2nd speed Rack travel in m: 15.40...15.60 LOW IDLE rpm : 750 3rd speed Speed rpm : 325
Rack travel in mm : 4.70...5.10
Del.quantity cm3/: 39.0...45.0
1000 s: (37.0...47.0)
Spread cm3 : 8.00 Rack travel in m: 13.90...14.20 th speed rpm : 600 4th speed Rack travel in m: 15.10...15.30 th speed rpm : 420 5th speed Rack travel in m: 0.00...15.20 1000 s: (12.00) Aneroid/Altitude Remarks: Compensator Test : MACK # 313GC5181P6 Delivery-valve spring pre-tension 3.0...3.2 mm. 1st version Setting : 510 Speed man * This test specification applies only to the engine/nozzle-and-holder Pressure hPa : 1200 : 15.40...15.60 Rack travel mm assemblies on an injection-pump test bench: setting for test equipment, Measurement 1/min: 510 check value for engine equipment. Speed

BO2

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 17...19 : 2.75...2.85 Note remarks Prestroke mm : (2.70...2.90) : MAC 12,0 a6 Rack travel in mm : 10.50 Test sheet : 04.09.90 : 1-5-3-6-2-4 Edition Firing order : 02.05.90 Replaces Test oil : ISO-4113 : 0 402 746 870 : 0-60-120-180-240-300 Phasing Combination no. Phasing : 0.50 (0.75) Tolerance + - ° Injection pump Pump designation : PES6P120A720RS7157 EP type number : 0 412 726 814 Time to cyl. no. : 1 Governor : RQV325...875PA878-14 BASIC SETTING Governor design. : 0 421 815 222 rpm: 875 1st speed Governer no. Rack travel in mm : 10.40...10.50 Customer-spec. information : MACK Customer Del.quantity cm3/: 17.4...17.6 : EM7-250L 4VH Engine 100 s: (17.1...17.9) : 187.0 1st version kW : 1750 cm3 : 0.5Rated speed Spread 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.0Test oil 2nd speed Rack travel in mm: 4.7...4.9 inlet temp. °C : 38...42 Del.quantity cm3/: 4.0...4.6 Overflow valve 100 s: (3.8...4.8) : 2 417 413 011 cm3 : 0.8Spread 100 s: (1.2) Overflow quantity min. 1/h: 160...170 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly rpm : 325 1st speed : 1.30...1.60 Opening travel mm pressure, bar : 207...210 2nd speed rpm 500 3.40...4.00 travel mm 900 3rd speed Orifice plate rpm travel mm : 6.70...6.90 diameter mm : 0,6 : 1075 4th speed rpm travel mm : 8.40...8.90 Test lines : 1 680 750 008 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version rpm : 875 : 6.00x2.00x600 x Length mm Speed Aneroid pressure h: 900 : 174.0...176.0 (A) Injection pump setting values Del.quantity 1000 : (171.0...179.0) Insp. values in parentheses : 5.00 Set equal delivery quant. cm3 Spread 1000 : (9.00) per values

RATED SPEED

BEGINNING OF DELIVERY

1st version Control lever position degrees: 54...62 Testing: 1st rack travel in: 9.40 rpm : 915...925 Speed 2nd rack travel in: 4.00 Speed rpm: 1020...1050 4th rack travel in: 1200 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 12...20 Testing: Speed : 275 rpm Minimum rack trave: 6.30 : 325 rpm Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 10.40...10.50 2nd speed rpm : 510 Rack travel in m: 11.90...12.10 3rd speed rpm : 450 Rack travel in m: 0.00...11.80 Aneroid/Altitude Compensator Test 1st version Setting rpm : 510 hPa : 900 Speed rpm Pressure Rack travel mm : 11.90...12.10 Measurement 1/min: 510 Speed 1st pressure hPa : -Rack travel in m: 7.80...8.20 2nd pressure hPa : 235 Rack travel in m: 8.80...8.90 3rd pressure hPa : 485 Rack travel in m: 10.80...11.20 START CUT-OUT 1/min: 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 : 510 Speed rpm

Del.quantity cm3/: 244.0...250.0 1000 s: (241.0...253.0)

cm3 : 8.00Spread

1000 s: (12.0) Aneroid pressure h: 900 Speed rpm

Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 151.0...155.0 1000 s: (149.0...157.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.40 rpm : 915...925 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 9.80 Speed rpm

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 170.0...210.0 1000 s: (160.0...220.0)

Rack travel in mm : 10.10...10.30

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

cm3 : 8.00 1000 s: (12.00) Spread

Remarks:

: MACK # 313GC5179-P28

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Delivery—valve spring pre—tension 3.0...3.2 mm.

* This test specification applies only to the engine/nozzle—and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Bow dimension: Sliding—sleeve position = 37.0 mm Setting and blocking of pointer of start—of—delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 12.0 c : 04.09.90 Test sheet Edition : 02.05.90 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 871 Injection pump Pump designation : PES6P120A720RS7157 : 0 412 726 814 EP type number Governor Governor design. : RQV325...900PA929K : 0 421 815 223 Governer no. Customer-spec. information Customer : MACK TRUCKS Engine : E7-400 1st version kW : 298.0 Rated speed : 1800 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder : 1 688 901 101 assembly **Opening** : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values

: 2.75...2.85 : (2.70...2.90) Prestroke mm Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 15.80...15.90 Del.guantity cm3/: 27.5...27.7 100 s: (27.2...28.0) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.02nd speed Rack travel in mm : 5.1...5.3 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) cm3 : 0.8 Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 325 : 1.20...1.40 1st speed travel mm rpm : 450 2nd speed : 2.80...3.20 travel mm rpm : 650 3rd speed : 5.60...5.80 travel mm rpm : 900 4th speed : 8.30...8.50 travel mm 5th speed : 1100 rpm : 10.30...10.80 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed Aneroid F. Del.quantity 1000 Aneroid pressure h: 1200 : 275.0...277.0 : (272.0...280.0)

: 5.00

: (9.00)

cm3

1000

Spread

B07

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Insp. values in parentheses

Set equal delivery quant.

RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 14.80 rpm : 940...950 Speed 2nd rack travel in: 4.00 rpm : 1105...1135 Speed 4th rack travel in: 1200 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rpm Minimum rack trave: 6.30 Speed rpm : 325 Rack travel in mm : 5.10...5.30 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 15.80...15.90 2nd speed rpm : 625 Rack travel in m: 15.20...15.40 3rd speed rpm : 700 Rack travel in m: 15.40...15.60 4th speed rpm : 500 Rack travel in m: 0.00...13.50 Aneroid/Altitude Compensator Test 1st version Setting : 900 Speed rpm hPa : 1200 Pressure : 15.80...15.90 Rack travel mm Measurement Speed $1/\min : 900$

1st pressure hPa : -Rack travel in m: 8.50...8.90 2nd pressure hPa : 325 Rack travel in m: 10.20...10.30 3rd pressure hPa : 790 Rack travel in m: 13.80...14.20

START CUT-OUT

1/min : 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 Speed

: 625 rpm Del.quantity cm3/: 302.5...308.5 1000 s: (299.5...311.5)

Spread cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: 1200

Speed rpm : 850 Del.quantity cm3/ : 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: -: 400 Speed rpm

Del.quantity cm3/: 157.5...161.5 1000 s: (155.5...163.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.80 rpm : 940...950 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 14.70 Speed rom

STARTING FUEL DELIVERY

: 100 Speed rpm

Speed rpm . 100 Del.quantity cm3/: 180.0...220.0 1000 s: (170.0...230.0)

Rack travel in mm : 10.80...11.40

LOW IDLE

Speed rpm

Rack travel in mm : 5.10...5.30 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

cm3 : 8.00Spread 1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P8

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC 12,0 c1 : 04.09.90 Edition : 02.05.90 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 872 Injection pump Pump designation : PES6P120A720RS7157 EP type number : 0 412 726 814 Governor : RQV325...900PA929-1K Governor design. : 0 421 815 224 Governer no. Customer-spec. information : MACK TRUCKS Customer : E7-350 Engine 1st version kW : 261.0 Rated speed : 1800 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder : 1 688 901 101 assembly Opening 1 : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter

x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing : 0.50 (0.75) Tolerance + - ° Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 13.60...13.70 Del.quantity cm3/: 23.1...23.3 100 s: (22.9...23.5) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.02nd speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) cm3 : 0.8 Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 325 : 1.20...1.40 travel mm rpm : 450 2nd speed travel mm 2.80...3.20 : 650 3rd speed rpm 5.60...5.80 travel mm : 900 4th speed rpm : 8.30...8.50 travel mm : 1100 5th speed rpm : 10.30...10.80 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed Aneroid pressure h: 1200 : 231.5...233.5 Del.quantity 1000 : (229.5...235.5) : 5.00 cm3 Spread

1000

: (9.00)

Test pressure, bar: 17...19

RATED SPEED 1st version Control Lever position degrees: 58...66 Testing: 1st rack travel in: 12.60 rpm : 940...950 2nd rack travel in: 4.00 rpm : 1080...1110 Speed 4th rack travel in: 1200 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 7...15 Testing: Speed rom Minimum rack trave: 5.90 Speed rpm : 325 Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version : 900 1st speed rpm Rack travel in m: 13.60...13.70 : 625 2nd speed rpm Rack travel in m: 13.30...13.50 rpm : 500 3rd speed Rack travel in m: 0.00...12.00 Aneroid/Altitude Compensator Test 1st version Setting Speed : 900 rpm hPa : 1200 Pressure : 13.60...13.70 Rack travel mm Measurement 1/min: 900 Speed

1st pressure hPa : -Rack travel in m: 8.00...8.40 2nd pressure hPa : 325 Rack travel in m: 9.40...9.50 3rd pressure hPa : 685 Rack travel in m: 12.10...12.50 START CUT-OUT 1/min: 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 Speed rpm : 625 Del.quantity cm3/: 263.0...269.0

1000 s: (260.0...272.0)

cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200 : 850 Speed rpm

Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 153.0...157.0 1000 s: (151.0...159.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.60 rpm : 940...950 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 12.70 Speed rpm

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0...210.0 1000 s: (160.0...220.0) Rack travel in mm : 10.30...10.90

LOW IDLE

: 325 Speed rpm Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

cm3 : 8.00Spread 1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P4

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Bow dimension: Sliding-sleeve position = 37.0 mm

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

: MAC 12,0 c2 : 04.09.90 Test sheet Edition : 02.05.90 Replaces : ISO-4113 Test oil

: 0 402 746 873 Combination no.

Injection pump

Pump designation : PES6P120A720RS7157 EP type number : 0 412 726 814

Governor

Governor design. : RQV325...875PA929-2K

: 0 421 815 225 Governer no.

Customer-spec. information : MACK TRUCKS Customer

: EM7-300L Engine

1st version kW : 224.0 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test Lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 875 1st speed

Rack travel in mm : 12.60...12.70

Del.guantity cm3/: 21.1...21.3

100 s: (20.9...21.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed

Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

Spread

1st speed

rpm : 325 : 1.20...1.40 travel mm

rpm : 450 2nd speed

: 2.80...3.20 travel mm

rpm : 650 3rd speed

: 5.60...5.80 travel mm

rpm : 900 4th speed

: 8.30...8.50 travel mm

1100 5th speed rpm

: 10.30...10.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 875 Speed

Aneroid pressure h: 1200

Del.quantity 1000

: 211.0...213.0 : (209.5...215.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 57...55

Testing:

1st rack travel in: 11.60 Speed rpm : 915...925

2nd rack travel in: 4.00 rpm : 1050...1080 Speed

4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed : 275 rpm Minimum rack trave: 6.00 rpm : 325 Speed

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 875

Rack travel in m: 12.60...12.70 od speed rpm : 510

2nd speed

Rack travel in m: 13.60...13.80

3rd speed rpm : 400

Rack travel in m: 0.00...13.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 510 rpm hPa : 1200 Pressure

Rack travel mm : 13.60...13.80

Measurement

1/min: 510 Speed

1st pressure hPa : -

Rack travel in m: 8.10...8.50

2nd pressure hPa : 370 Rack travel in m: 9.50...9.60

3rd pressure hPa : 740

Rack travel in m: 12.30...12.70

START CUT-OUT

1/min: 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 510
Del.quantity cm3/: 292.5...296.5
1000 s: (189.5...199.5)

cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: 1200

: 850 Speed rpm Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 157.5...161.5

1000 s: (155.5...163.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60

rpm : 915...925 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 11.90

Speed rom

STARTING FUEL DELIVERY

Speed rpiii : 100

Del.quantity cm3/: 180.0...220.0 1000 s: (170.0...230.0)

Rack travel in mm : 10.40...11.00

LOW IDLE

: 325 Speed rpm

Rack travel in mm: 4.80...5.00 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P12

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Bow dimension: Sliding-sleeve position = 37.0 mm

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 12.0 a7 : 04.09.90 : 02.05.90 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 402 746 874 Injection pump Pump designation : PES6P12DA72ORS7157 EP type number : 0 412 726 814 Governor Governor design. : RQV325...850PA909-3K Governer no. : 0 421 815 230 Customer-spec. information Customer : MACK TRUCKS : E7-300 Engine : 220.0 1st version kW Rated speed : 1700 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder assembly : 1 688 901 101 Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 17...19 **B16**

: 2.75...2.85 Prestroke mm : (2.70...2.90) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 850 Rack travel in mm : 12.20...12.30 Del.guantity cm3/: 20.4...20.6 100 s: (20.2...20.8) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.0 2nd speed Rack travel in mm : 4.7...4.9 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 325 1.20...1.40 travel mm rpm : 450 2nd speed : 2.80...3.20 travel mm rpm : 650 3rd speed : 5.60...5.80 travel mm rpm : 900 4th speed : 8.30...8.50 travel mm : 1100 5th speed rpm : 10.30...10.80 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 850 Anerous. Del.quantity 1000 Aneroid pressure h: 1200 : 204.0...206.0

: (202.0...208.0)

: 5.00

: (9.00)

cm3 1000

Spread

RATED SPEED

1st version Control Lever

position degrees: 51...59

Testing:

1st rack travel in: 11.20 rpm : 890...900 Speed 2nd rack travel in: 4.00

rpm : 1030...1060 Speed

4th rack travel in: 1150

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 5...13

Testing:

Speed rom Minimum rack trave: 6.10 Speed rpm : 325

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 12.20...12.30

2nd speed

nd speed rpm : 600 Rack travel in m: 12.40...12.60

rpm : 500 3rd speed

Rack travel in m: 0.00...11.10

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm Pressure hPa : 1200

Rack travel mm : 12.40...12.60

Measurement

Speed 1/min: 600

1st pressure hPa : -

Rack travel in m: 7.70...8.10

2nd pressure hPa : 265

Rack travel in m: 9.00...9.10

3rd pressure hPa : 565

Rack travel in m: 11.20...11.60

START CUT-OUT

1/min: 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 600 Del.quantity cm3/: 241.0...247.0 1000 s: (239.0...249.0)

Spread : 8.00 cm31000 s: (12.0)

Aneroid pressure h: 1200 : 850 Speed

rpm Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 148.0...152.0 1000 s: (146.0...154.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

rpm : 890...900 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 180.0...220.0 1000 s: (170.0...230.0)

Rack travel in mm : 10.00...10.60

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.70...4.90

Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P14

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test

bench: setting for test equipment,

check value for engine equipment.

Bow dimension:

Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 12,0 a8 Test sheet : 04.09.90 Edition : 2.5.90 Replaces Test oil : ISO-4113 : 0 402 746 875 Combination no. Injection pump Pump designation : PES6P120A720RS7157 : 0 412 726 814 EP type number Governor Governor design. : RQV325...975PA909-4K : 0 421 815 231 Governer no. Customer-spec. information : MACK TRUCKS Customer : E7-300A Engine 1st version kW : 224.0 Rated speed : 1950 TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6

Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Test pressure, bar: 17...19 **B18**

: 2.75...2.85 : (2.70...2.90) Prestroke mm Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 975 1st speed Rack travel in mm : 12.30...12.40 Del.quantity cm3/: 20.1...20.3 100 s: (19.9...20.5) Spread cm3 : 0.5100 s: (0.9) rpm : 325.0 2nd speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 275 1st speed 0.50...1.00 travel mm : 325 2nd speed rpm 1.50...1.70 travel mm : 450 3rd speed rpm : 2.90...3.30 travel mm rpm : 1000 4th speed : 8.40...8.60 travel mm rpm : 1200 5th speed : 10.20...10.60 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 975 Speed Aneroid pressure h: 1200 Del.quantity : 201.0...205.0)

Spread

cm3

1000

: 5.00

: (9.00)

RATED SPEED 1st version Control Lever position degrees: 54...62 Testing: 1st rack travel in: 11.30 Speed rpm : 1015...1025 2nd rack travel in: 4.00 Speed Speed LOW IDLE 1 Control lever position degrees: 8...16 Testing: Speed

rpm : 1145...1175 4th rack travel in: 1250 rpm : 0.00...1.00

rpm Minimum rack trave: 6.10 Speed rpm : 325

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION rpm : 325...520 Speed

TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 975 Rack travel in m: 12.30...12.40 2nd speed rom : 600 Rack travel in m: 11.70...11.90 3rd speed rpm : 500 Rack travel in m: 0.00...11.50

Aneroid/Altitude Compensator Test

1st version Setting Speed : 975 rpm hPa : 1200 Pressure : 12.30...12.40 Rack travel mm

Measurement 1/min: 975 Speed

1st pressure hPa : -Rack travel in m: 7.70...8.10 2nd pressure hPa : 235 Rack travel in m: 9.00...9.10 3rd pressure hPa : 460

Rack travel in m: 10.80...11.20

START CUT-OUT

1/min: 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200

Speed rpm : 600 Del.quantity cm3/: 221.0...227.0 1000 s: (219.0...229.0)

Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1200 Speed : 850 rpm

Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 146.0...150.0 1000 s: (144.0...152.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.30 rpm : 1015...1025 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 180.0...220.0 1000 s: (170.0...230.0)

Rack travel in mm : 10.00...10.60

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.70...4.90

Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

Spread cm3 : 8.00 1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P18

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection pump test bench: setting for test equipment, check value for engine equipment. Bow dimension: Sliding-sleeve position = 37.0 mmSetting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

Test sheet : MB 11,8 s : 20.07.90 Edition : 6.7.90 Replaces Test oil : ISO-4113

: 0 402 746 884 Combination no.

Injection pump

Pump designation : PES6P120A720LS7196

: 0 412 726 831 EP type number

Governor

Governor design. : RQV450..1050PA886-1

: 0 421 813 835 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M447 h LA Engine

: 304.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test Lines

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 19.00...21.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 28.4...28.6

100 s: (28.1...28.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 450.0 2nd speed Rack travel in mm: 4.0...4.6

Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 400 1st speed

: 1.40...1.70 travel mm

rpm : 700 2nd speed

: 4.00...4.40 travel mm

: 1100 3rd speed rpm

: 7.60...8.10 travel mm

: 1200 4th speed rpm

: 9.50...10.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 950 Rack travel in m: 15.50...15.70 : 284.0...286.0 Del.quantity 4th pressure hPa : -1000 : (281.0...289.0) cm3 : 5.00 Rack travel in m: 9.80...10.20 Spread 1000 : (9.00) START CUT-OUT RATED SPEED Speed 1/min: 370 (390) FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 115...123 1st version Testina: Aneroid pressure h: 1600 Speed rpm : 1050 Del.quantity cm3/: 280.0...283.0 1st rack travel in: 14.40 rpm : 1090...1100 Speed 1000 s: (277.0...286.0) 2nd rack travel in: 4.00 rpm : 1180...1210 Speed Spread cm3 : 8.004th rack travel in: 1300 1000 s: (12.0) rpm : 0.00...1.00Aneroid pressure h: 1600 Speed : 800 Speed שמיו Del.quantity cm3/: 298.0...302.0 LOW IDLE 1 Control lever 1000 s: (295.0...305.0) position degrees: 60...68 Spread cm3 : 8.001000 s: (12.0) Testing: Aneroid pressure h: rpm : 500 Speed rom Speed Del.quantity cm3/: 145.0...147.0 Minimum rack trave: 5.90 rpm : 450 1000 s: (142.0...150.0) Speed Rack travel in mm : 4.00...4.60 cm3 : 8.00 Spread 1000 s: (12.0) CONSTANT REGULATION rpm : 450...650 Speed BREAKAWAY TORQUE CONTROL Dimension a mm : 0.60 1st version : 1050 1mm rack travel less than 2nd speed rpm Rack travel in m: 15.40...15.60 3rd speed : 900 full load rack tr: 14.40 rpm Rack travel in m: 15.70...15.90 Speed rpm : 1090...1100 4th speed rpm : 800 Rack travel in m: 16.00...16.20 STARTING FUEL DELIVERY Aneroid/Altitude Compensator Test Speed rpm : 100 Del.quantity cm3/: 280.0...300.0 1000 s: (276.0...304.0) 1st version Setting Remarks: Speed rpm : 600 : hPa : 950 Pressure Rack travel mm : 15.20...15.40 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.80...12.00 2nd pressure hPa : 600 Rack travel in m: 13.70...13.90 3rd pressure hPa : 1200

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.75...2.85 : (2.70...2.90) Note remarks Rack travel in mm : 10.50 : MAC 12.0 e : 04.09.90 : 17.5.90 : 1-5-3-6-2-4 Test sheet Firing order Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 402 746 885 Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6P120A720RS7157 EP type number : 0 412 726 814 Time to cyl. no. : 1 Governor BASIC SETTING Governor design. : RQV325...875PA944-3K Governer no. : 0 421 815 238 1st speed rpm: 875 Customer-spec. information Rack travel in mm : 11.40...11.50 Customer : MACK TRUCKS Del.quantity cm3/: 19.2...19.4 Engine : EM7-275 100 s: (19.0...19.6) 1st version kW : 205.0 Rated speed : 1750 cm3 : 0.5Spread TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil 2nd speed rpm : 325.0 inlet temp. °C : 38...42 Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 4.0...4.6 Overflow valve 100 s: (3.8...4.8) : 2 417 413 011 Spread cm3 : 0.8 100 s: (1.2) Overflow quantity min. 1/h: 160...170 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 101 GUIDE SLEEVE TRAVEL 1st speed rpm : 325 1.20...1.40 Opening | travel mm rpm : 450 pressure, bar : 207...210 2nd speed : 2.80...3.20 travel mm Orifice plate rpm : 650 3rd speed diameter mm : 5.60...5.80 : 0,6 travel mm : 900 4th speed rpm : 8.30...8.50 travel mm Test lines : 1 680 750 008 : 1100 5th speed rom : 10.30...10.80 travel mm Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP x Length mm : 6.00x2.00x600 1st version (A) Injection pump setting values Speed rpm : 875 Insp. values in parentheses Aneroid pressure h: 1200 Aneroid Del. quantity 1000 Set equal delivery quant. : 192.0...194.0 : (190.0...196.0) per values ____

: 5.00

: (9.00)

cm3

1000

Spread

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

RATED SPEED 1st version Control lever position degrees: 54...62 Testing: 1st rack travel in: 10.40 rpm : 915...925 Speed 2nd rack travel in: 4.00 : 1025...1055 Speed rpm 4th rack travel in: 1150 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rpm Minimum rack trave: 5.90 rpm Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version : 875 1st speed rpm Rack travel in m: 11.40...11.50 : 510 2nd speed rpm Rack travel in m: 12.80...13.00 3rd speed rom : 600 Rack travel in m: 12.40...12.80 4th speed rpm : 450 Rack travel in m: 0.00...12.50 Aneroid/Altitude Compensator Test 1st version Setting : 510 Speed rpm hPa : 1200 Pressure : 12.80...13.00 Rack travel mm Measurement 1/min: 510 Speed 1st pressure hPa : -Rack travel in m: 8.00...8.40 2nd pressure hPa : 355 Rack travel in m: 9.40...9.50 3rd pressure hPa : 630 Rack travel in m: 11.50...11.90

1/min: 275 (285) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 510 rpm Del.quantity cm3/: 268.0...274.0 1000 s: (266.0...276.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1200 Speed : 850 rpm Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 157.5...161.5 700 s: (155.5...163.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 915...925 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 190.0...230.0 1000 s: (180.0...240.0) Rack travel in mm : 10.40...11.00 LOW IDLE Speed rpm Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : MACK # 313GC5185-P22

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Start-of-delivery mark = 13,5° after start of delivery cyl. 1.

Setting and blocking of pointer of

START CUT-OUT

start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

Test sheet : MAC 12.0 e1 : 04.09.90 Edition : 2.5.90 Replaces : ISO-4113 Test oil

Combination no. : 0 402 746 886

Injection pump

Pump designation : PES6P120A720RS7157 EP type number : 0 412 726 814

Governor

Governor design. : RQV325...975PA944-4K

: 0 421 815 239 Governer no.

Customer-spec. information Customer : MACK TRUCKS

Engine : E7-250A

: 186.0 1st version kW : 1950 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 Prestroke mm : (2.70...2.90)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 975 1st speed

Rack travel in mm : 10.40...10.50

Del.guantity cm3/: 16.4...16.6

100 s: (16.2...16.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 275 1st speed

: 0.50...1.00 travel mm

rpm : 325 2nd speed

: 1.50...1.70 travel mm

rpm : 450 3rd speed

: 2.90...3.30 travel mm

rpm : 10004th speed

: 8.40...8.60 travel mm

: 1200 5th speed man

: 10.20...10.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 975 Speed

Aneroid pressure h: 1200

: 164.5...166.5 Del.quantity

1000 : (162.5...168.5)

: 5.00

Spread cm3 1000 : (9.00) RATED SPEED

1st version Control lever

position degrees: 54...62

Testing:

1st rack travel in: 9.40 Speed rpm : 1015...1025

2nd rack travel in: 4.00

rpm : 1120...1150 Speed

4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed rpm

Minimum rack trave: 6.10 rpm : 325 Speed

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 975

Rack travel in m: 10.40...10.50

rpm : 600 2nd speed

Rack travel in m: 10.80...11.00

rpm : 500 3rd speed

Rack travel in m: 0.00...10.20

Aneroid/Altitude

Compensator Test

1st version

Setting

: 600 Speed man

hPa : 1200 Pressure

Rack travel mm : 10.80...11.00

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 7.50...7.90

2nd pressure hPa : 195

Rack travel in m: 8.40...8.50

3rd pressure hPa : 375

Rack travel in m: 9.90...10.30

START CUT-OUT

1/min: 275 (285) Speed

B26

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed : 600 rpm

Del.quantity cm3/: 198.5...204.5 1000 s: (196.5...206.5) Spread cm3 : 8.00

1000 s: (12.0) Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 146.0...150.0 1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

rpm : 1015...1025 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 180.0...220.0 1000 s: (170.0...230.0)

Rack travel in mm : 10.00...10.60

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 4.70...4.90

Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P26

* This test specification applies only

assemblies on an injection-pump test

bench: setting for test equipment,

check value for engine equipment.

to the engine/nozzle-and-holder

Bow dimension:

Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

Test sheet : MAC 11,1 e9 : 04.09.90 Edition : 2.5.90 Replaces

: ISO-4113 Test oil

: 0 402 746 888 Combination no.

Injection pump

Pump designation : PES6P120A720RS7164

: 0 412 726 816 EP type number

Governor

Governor design. : RQV325...875PA878-15

: 0 421 815 235 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

: EMC6 300L 4VH Engine

: 200.0 1st version kW Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 12.00...13.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 14.90...15.00

Del.guantity cm3/: 22.5...22.7

100 s: (22.3...22.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 3.9...4.5

100 s: (3.7...4.7)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.20...1.40 travel mm

rpm : 450 2nd speed

: 3.00...3.40 travel mm

: 850 3rd speed man

: 5.90...6.10 rpm : 1000 travel mm

4th speed

travel mm : 7.40...7.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 875 Speed Aneroid pressure h: 1200

Del.quantity : 225.0...227.0

1000 : (223.0...229.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED 1st version Control Lever position degrees: 54...62 Testing: 1st rack travel in: 13.90 rpm : 915...925 Speed 2nd rack travel in: 4.00 rpm : 1065...1095 Speed 4th rack travel in: 1160 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm Minimum rack trave: 5.90 rpm Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 875 1st speed Rack travel in m: 14.90...15.00 : 510 rpm 2nd speed Rack travel in m: 16.80...17.00 rpm : 700 3rd speed Rack travel in m: 15.60...15.80 4th speed rpm : 600 Rack travel in m: 16.40...16.60 : 420 5th speed rpm Rack travel in m: 0.00...16.80 Aneroid/Altitude Compensator Test 1st version Setting : 510 Speed rpm Pressure hPa : 1200 Rack travel mm : 16.80...17.00 Measurement Speed $1/\min : 510$

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 510 rpm Del.quantity cm3/: 305.0...311.0 1000 s: (302.0...314.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1200 : 875 Speed rpm Del.quantity cm3/: 179.0...181.0 * 1000 s: (151.0...175.0) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 156.0...160.0 1000 s: (154.0...162.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.90 rpm : 915...925 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 11.20 : 805 Speed rpm Rack travel in mm: 4.80 Speed : 300 rpm STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 160.0...200.0 1000 s: (150.0...210.0) Rack travel in mm : 10.90...11.30 LOW IDLE Speed rpm : 325 Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : MACK # 313GC5181P16 Delivery-valve spring pre-tension 3.0...3.2 mm.

* This test specification applies only

Rack travel in m: 15.70...16.10

1st pressure hPa : -

2nd pressure hPa : 375

3rd pressure hPa : 735

Rack travel in m: 10.90...11.30

Rack travel in m: 12.70...12.80

to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

Test sheet : FOR 7,8 k Edition : 10.08.90

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 746 889

Injection pump

Pump designation : PES6P120A720RS7179

EP type number : 0 412 726 826

Governor

Governor design. : RQV350..1000PA917-1K

: 0 421 815 236 Governer no.

Customer—spec. information

Customer : FNH

: 7.8L Engine

1st version kW : 160.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 072

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 4.35...4.45 : (4.30...4.50)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 10001st speed

Rack travel in mm : 12.50...12.60

Del.guantity cm3/: 15.9...16.1

100 s: (15.6...16.4)

Spread cm3 : 0.7

100 s: (1.1)

rpm : 350.02nd speed

Rack travel in mm : 5.0...5.4 Del.quantity cm3/ : 2.0...2.6

100 s: (1.8...2.8)

cm3 : 0.5Spread

100 s: (0.9)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1055 1st speed

9.20...9.40 travel mm

2nd speed rpm

: 350 : 2.20...2.40 travel mm

: 500 3rd speed rpm

travel mm : 4.10...4.70

: 750 4th speed rpm

travel mm : 6.60...7.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1230 Speed

Rack travel in mm : 6.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

Aneroid pressure h: 1400

Del.quantity : 159.0...161.0 1000 : (156.0...164.0)

: 7.00 Spread cm3

1000 : (11.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testina:

1st rack travel in: 11.50

rpm : 1050...1060 Speed

2nd rack travel in: 4.00

rpm : 1165...1195 Speed

4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 69...77

Testina:

Speed rpm : 100

Minimum rack trave: 6.70

rpm : 350

Rack travel in mm : 5.00...5.40

CONSTANT REGULATION

rpm : 320...440 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

rpm : 1000 1st speed

Rack travel in m: 12.50...12.60

rpm : 750 2nd speed

Rack travel in m: 13.10...13.30

3rd speed rpm : 650

Rack travel in m: 12.50...12.90

Aneroid/Altitude

Compensator Test

1st version

Settina

: 750 Speed rpm

hPa : 1400 Pressure

Rack travel mm : 13.10...13.30

Measurement

1/min: 750 Speed

1st pressure hPa : -

Rack travel in m: 8.00...8.40

2nd pressure hPa : 310

Rack travel in m: 9.60...9.70

3rd pressure hPa : 620

Rack travel in m: 11.80...12.20

START CUT-OUT

1/min: 290 (310) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

: 750 Speed rpm

Del.quantity cm3/: 187.0...193.0 1000 s: (184.0...196.0)

cm3 : 8.00Spread

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 101.0...103.0

1000 s: (98.0...106.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

rpm : 1050...1060 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 145.0...165.0 1000 s: (140.0...170.0)

Rack travel in mm : 10.70...11.30

Remarks:

: FNH # F9HN-9A543-PA

Bow dimension:

Sliding-sleeve position = 37.0 mm

03

Note remarks

: MAC 12,0 h Test sheet : 08.08.90 Edition : 9.7.90 Replaces Test oil : ISO-4113

Combination no. : 0 402 746 890

Injection pump

Pump designation : PES6P120A720RS7200

EP type number : 0 412 726 833

Governor

Governor design. : RQV325...875PA944-5K

: 0 421 815 240 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

Engine : EM7-275

: 202.0 1st version kW : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.25...3.35 Prestroke mm (3.20...3.40)

Rack travel in mm : 11.00...13.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.50 & maximum rack tra: 12.00

Difference ° CS : 2.50...3.00

BASIC SETTING

rpm: 875 1st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 23.5...23.7

100 s: (23.3...23.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.40...1.60 travel mm

2nd speed : 450 rpm travel mm

3.30...3.70 : 700

3rd speed rpm

7.90...8.30 travel mm

900 4th speed rpm

: 9.40...9.60 travel mm

5th speed : 1050 rpm

: 10.60...11.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

FULL LOAD DELIV. AT FULL LOAD STOP Speed $1/\min : 510$ 1st version 1st pressure hPa : -Rack travel in m: 8.60...9.00 rpm : 875 Speed 2nd pressure hPa : 310 Rack travel in m: 10.10...10.20 Aneroid pressure h: 1200 : 235.5...237.5 : (233.5...239.5) Del.quantity 1000 3rd pressure hPa : 635 cm3 : 5.00 Rack travel in m: 12.50...12.90 Spread 1000 : (9.00) START CUT-OUT RATED SPEED 1/min : 250 (255) Speed 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 60...68 Testing: 1st version Aneroid pressure h: 1200 1st rack travel in: 12.20 rpm : 915...925 Speed : 510 Speed rpm Del.quantity cm3/: 310.0...314.0 1000 s: (307.0...317.0) 2nd rack travel in: 4.00 : 1055...1085 Speed rom 4th rack travel in: 1200 cm3 : 8.00 Spread 1000 s: (12.0) rpm : 0.00...1.00Speed Aneroid pressure h: -: 400 LOW IDLE 1 Speed rpm Del.quantity cm3/: 155.5...159.5 Control lever 1000 s: (153.5...161.5) position degrees: 8...16 Testing: Speed : 275 BREAKAWAY rpm Minimum rack trave: 6.00 1st version Speed : 325 rpm Rack travel in mm : 4.80...5.00 1mm rack travel less than full load rack tr: 12.20 CONSTANT REGULATION rpm : 325...520 rpm : 915...925 Speed Speed TORQUE CONTROL STARTING FUEL DELIVERY Dimension a mm :? Torque control curve - 1st version Speed rpm : 100 Del.quantity cm3/ : 190.0...230.0 rpm : 875 1st speed Rack travel in m: 13.20...13.30 : 510 1000 s: (180.0...240.0) 2nd speed rpm Rack travel in mm : 19.00...21.00 Rack travel in m: 13.80...14.00 3rd speed rpm : 600 Rack travel in m: 13.80...14.00 LOW IDLE 4th speed rpm : 450 Rack travel in m: 13.10...13.50 Speed rpm Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 Aneroid/Altitude 1000 s: (38.0...48.0) Compensator Test Spread cm3 : 8.00 1000 s: (12.00) 1st version Setting Remarks: : 510 : MACK # 313GC5188-P4 Speed rpm Pressure hPa : 1200 : 13.80...14.00 Setting and blocking of pointer of Rack travel mm start-of-delivery sensor on cyl. 1 Measurement start of delivery

CO5

Bow dimension: Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : RVI 9,8 k : 06.07.90 Test sheet Edition Replaces Test oil : ISO-4113 : 0 402 746 893 Combination no. Injection pump Pump designation : PES6P120A320RS7201 : 0 412 726 834 EP type number Governor Governor design. : RQV275...1000PA948 Governer no. : 0 421 813 852 Customer-spec. information : RVI Customer : MIDR 062045Q Engine 1st version kW : 176.5 : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075 Outside diameter x Wall thickness : 8.00X2.50X1000 x Length mm

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x100x

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90 : (4.75...4.95) Rack travel in mm : 12.50...13.50 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing : 0.50 (0.75) Tolerance + - ° BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 12.50...13.50 & maximum rack tra: 20.0...21.0 Difference ° CS : 2.25...3.75 BASIC SETTING rpm: 1000 1st speed Rack travel in mm : 13.90...14.00 Del.quantity cm3/: 23.3...23.5 100 s: (23.0...23.8) cm3 : 0.5Spread 100 s: (0.9) rpm : 275.0 2nd speed Rack travel in mm: 5.4...5.8 Del.quantity cm3/: 3.1...3.7 100 s: (2.8...4.0) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1000 1st speed travel mm : 7.60...7.80 2nd speed : 275 rpm : 1.10...1.80 travel mm 3rd speed 500 rpm 3.70...4.10 travel mm 4th speed : 770 rpm : 5.90...6.30 travel mm rpm : 1400 5th speed travel mm : 11.00...12.00 GUIDE SLEEVE POSITION

GUIDE SLEEVE POSITION
Control-lever position
Degree: -1
Speed rpm : 1060
Rack travel in mm : 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 900

: 233.0...235.0 Del.quantity

1000 : (230.0...238.0)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 296...304

Testing:

1st rack travel in: 12.90

rpm : 1065...1075 Speed

2nd rack travel in: 4.00

rpm : 1200...1230 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 244...252

Testing:

Speed rom Minimum rack trave: 6.90 rpm : 275 Speed

Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

rpm : 310...420 Speed

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rom hPa : 900 Pressure

Rack travel mm : 13.90...14.00

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.80...11.20

2nd pressure hPa : 560

Rack travel in m: 13.10...13.30 3rd pressure hPa : 240 Rack travel in m: 11.50...11.90

START CUT-OUT

1/min: 225 (245) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 500 Del.quantity cm3/ : 237.0...241.0

1000 s: (234.0...244.0)

: 500 Speed rpm Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 135.0...137.0

1000 s: (132.0...140.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90

: 1065...1075 Speed rpm

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 150.0...180.0

1000 s: (146.0...184.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.40...5.80 Del.quantity cm3/: 31.0...37.0

1000 s: (28.0...40.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 12,0 i : 17.05.90 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 402 746 895 Injection pump Pump designation : PES6P120A720RS7157 : 0 412 726 814 EP type number Governor Governor design. : RQV325...875PA961K : 0 421 815 245 Governer no. Customer-spec. information : MACK TRUCKS Customer : EM7-275 Engine : 205.0 1st version kW : 1750 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder assembly : 1 688 901 101 Opening | pressure, bar : 207...210 Orifice plate diameter mm : 0,6 : 1 680 750 008 Test Lines

Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 17...19 009

: 2.75...2.85 : (2.70...2.90) Prestroke mm Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING

1st speed rpm: 875 Rack travel in mm : 11.40...11.50 Del.guantity cm3/: 19.2...19.4 100 s: (19.0...19.6)

Spread cm3 : 0.5100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm : 4.7...4.9 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL rpm : 325 : 1.20...1.40 1st speed travel mm rpm : 450 2nd speed : 2.80...3.20 travel mm 3rd speed : 650 rpm : 5.60...5.80 travel mm : 900 4th speed rpm : 8.30...8.50 travel mm : 1100 5th speed rom : 10.30...10.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 875 Speed Aneroid pressure h: 1200 Anerous F. Del.quantity 1000 : 192.0...194.0 : (190.0...196.0) : 5.00 Spread cm3 : (9.00) 1000

RATED SPEED 1st version Control lever position degrees: 54...62 Testina: 1st rack travel in: 10.40 Speed rpm : 915...925 2nd rack travel in: 4.00 rpm : 1025...1055 Speed 4th rack travel in: 1150 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rpm Minimum rack trave: 5.90 : 325 rom Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 11.40...11.50 2nd speed rpm : 510 Rack travel in m: 12.80...13.00 3rd speed rpm : 600 Rack travel in m: 12.40...12.80 4th speed rpm : 450 Rack travel in m: 0.00...12.50 Aneroid/Altitude Compensator Test 1st version Setting : 510 Speed rpm hPa : 1200 Pressure : 12.80...13.00 Rack travel mm Measurement 1/min: 510 Speed 1st pressure hPa : -Rack travel in m: 8.00...8.40 2nd pressure hPa : 355 Rack travel in m: 9.40...9.50

Speed 1/min : 275 (285) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 510 Del.quantity cm3/ : 268.0...274.0 1000 s: (266.0...276.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 850 Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 157.5...161.5 1000 s: (155.5...163.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 915...925 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 10.80 Speed rpm : 850 STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 190.0...230.0 1000 s: (180.0...240.0) Rack travel in mm : 10.40...11.00 LOW IDLE rpm : 325 Speed Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) : 8.00 Spread cm3 1000 s: (12.00) Remarks: : MACK # 313GC5185-P24 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

* This test specification applies only

START CUT-OUT

3rd pressure hPa : 630

Rack travel in m: 11.50...11.90

to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Bow dimension:
Sliding-sleeve position = 37.0 mm

Note remarks

: MAC 12,0 h2 Test sheet

Edition : 08.08.90

Replaces

Test oil : ISO-4113

: 0 402 746 896 Combination no.

Injection pump

Pump designation : PES6P120A720RS7200

: 0 412 726 833 EP type number

Governor

Governor design. : RQV325...900PA944-11

: 0 421 815 260 Governer no.

Customer-spec. information

Customer : MACK TRUCKS

: E7-350 Engine

1st version kw : 261.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 11.00...13.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.50

& maximum rack tra: 12.00 Difference ° CS : 3.00...3.50

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 14.60...14.70

Del.quantity cm3/: 27.9...28.1

100 s: (27.7...28.3)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.02nd speed

Rack travel in mm: 4.8...5.0

Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

1.40...1.60 travel mm

450 2nd speed rpm

2.80...3.20 travel mm

: 700 3rd speed rpm

travel mm : 6.10...6.30

4th speed : 900 rom

: 8.50...8.70 travel mm

5th speed : 1050 rpm

travel mmi : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed 1st pressure hPa : Rack travel in m: 8.10...8.50
2nd pressure hPa : 365 Aneroid pressure h: 1200 : 279.5...281.5 1000 : (277.5...283.5) Del.quantity : 5.00 Rack travel in m: 9.70...9.80 Spread cm3 : (9.00) 3rd pressure hPa : 765 1000 Rack travel in m: 12.80...13.20 RATED SPEED START CUT-OUT 1st version 1/min: 250 (255) Control lever Speed position degrees: 59...67 FUEL DELIVERY CHARACTERISTICS Testing: 1st rack travel in: 13.60 rpm : 940...950 Speed 1st version 2nd rack travel in: 4.00 Aneroid pressure h: 1200 Speed rpm : 1105...1135 4th rack travel in: 1200 Speed rpm : 625 Del.quantity cm3/: 287.0...293.0 1000 s: (285.0...295.0) rpm : 0.00...1.00Speed cm3 : 8.00Spread 1000 s: (12.0) LOW IDLE 1 Control lever Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 152.0...156.0 1000 s: (150.0...158.0) position degrees: 8...16 Testing: : 275 Speed rpm Minimum rack trave: 6.00 BREAKAWAY rpm Rack travel in mm : 4.80...5.00 1st version 1mm rack travel less than CONSTANT REGULATION rpm : 325...520 Speed full load rack tr: 13.60 rpm : 940...950 TORQUE CONTROL Speed Dimension a mm :? Torque control curve - 1st version STARTING FUEL DELIVERY rpm : 900 1st speed Rack travel in m: 14.60...14.70 nd speed rpm : 625
Rack travel in m: 13.60...13.80
rd speed rpm : 800
Rack travel = 46 Speed rpm : 100
Del.quantity cm3/: 190.0...230.0
1000 s: (180.0...240.0) 2nd speed 3rd speed Rack travel in mm: 19.00...21.00 Rack travel in m: 14.00...14.20 rpm : 675 4th speed Rack travel in m: 13.60...13.80 LOW IDLE : 500 5th speed rpm Rack travel in m: 12.50...12.90 Speed rpm : 325 Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) Aneroid/Altitude Compensator Test Spread cm3 : 8.001000 s: (12.00) 1st version Setting Remarks: : 900 : MACK # 313GC5188-P12 Speed rpm hPa : 1200 Pressure Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 : 14.60...14.70 Rack travel mm start of delivery Measurement 1/min : 900 Speed

C13

Bow dimension: Sliding-sleeve position = 37.0 mm

Note remarks

Test sheet : MAC 12,0 h1 Edition : 08.08.90

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 746 897

Injection pump

Pump designation : PES6P120A720RS7200

EP type number : 0 412 726 833

Governor

Governor design. : RQV325...875PA944-12

K

Governer no. : 0 421 815 261

Customer-spec. information

Customer : MACK TRUCKS

Engine : EM7-300

1st version kW : 224.0 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

assembly : 1 688 901 101

Openina .

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35

: (3.20...3.40)

Rack travel in mm : 11.00...13.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.50...0.00

& maximum rack tra: 12.00

Difference ° CS : 2.50...3.00

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 24.8...25.0

100 s: (24.6...25.2)

Spread cm3: 0.5

100 s: (0.9)

2nd speed rpm: 325.0

Rack travel in mm: 4.8...5.0

Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8)

Spread cm3: 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.40...1.60

2nd speed rpm : 450

travel mm : 3.30...3.70
3rd speed rpm : 700

travel mm : 7.90...8.30

4th speed rpm : 900

5th speed rpm: 1050

travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 875

2nd pressure hPa : 370 Rack travel in m: 10.30...10.40 : 248.5...250.5 Del.quantity 1000 : (246.5...252.5) 3rd pressure hPa : 760 Rack travel in m: 13.10...13.50 : 5.00 Spread cm3 1000 : (9.00) START CUT-OUT RATED SPEED 1/min: 250 (255) Speed 1st version FUEL DELIVERY CHARACTERISTICS Control Lever position degrees: 61...69 Testing: 1st version 1st rack travel in: 13.00 Aneroid pressure h: 1200 rpm : 915...925 : 510 Speed Speed rpm Del.quantity cm3/: 330.5...336.5 1000 s: (328.5...338.5) 2nd rack travel in: 4.00 rom : 1065...1095 Speed 4th rack travel in: 1200 cm3 : 8.00 Spread Speed rpm : 0.00...1.001000 s: (12.0) Aneroid pressure h: -: 400 LOW IDLE 1 Speed rpm Del.quantity cm3/: 156.0...160.0 Control lever 1000 s: (154.0...162.0) position degrees: 8...16 Testina: : 275 Speed rpm BREAKAWAY Minimum rack trave: 6.00 1st version rpm : 325 Rack travel in mm : 4.80...5.00 1mm rack travel less than full load rack tr: 13.00 CONSTANT REGULATION rpm : 915...925 Speed rpm : 325...520 Speed STARTING FUEL DELIVERY TORQUE CONTROL Dimension a mm ; ? Torque control curve - 1st version rpm : 875 rpm : 100 1st speed Speed Del.quantity cm3/: 190.0...230.0 Rack travel in m: 14.00...14.10 1000 s: (180.0...240.0) rpm : 510 2nd speed Rack travel in m: 14.70...14.90 Rack travel in mm : 19.00...21.00 3rd speed rpm : 575 Rack travel in m: 14.70...14.90 LOW IDLE 4th speed rpm : 450 Rack travel in m: 13.80...14.20 rpm : 325 Speed Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) Aneroid/Altitude Compensator Test : 8.00 Spread cm3 1000 s: (12.00) 1st version Remarks: Setting : 510 : MACK # 313GC5188-P10 Speed man Pressure hPa : 1200 Rack travel mm : 14.70...14.90 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery Measurement 1/min: 510 Speed Bow dimension: Sliding-sleeve position = 37.0 mm1st pressure hPa : -Rack travel in m: 8.70...9.10

Aneroid pressure h: 1200

Note remarks

Test sheet : MAC 15,0 b Edition : 16.02.90

Replaces

Test oil : ISO-4113

Combination no. : 0 402 748 801

Injection pump

Pump designation : PES8P120A920/4LS7184

EP type number : 0 412 728 802

Governor

: RQV325...950PA848-16 Governor design.

: 0 421 815 196 Governer no.

Customer-spec. information : MACK Customer

Engine : E9 500

: 373.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm

: 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 11.00...13.00 : 1- 2- 7- 8- 4- 5-6- 3 Firing order

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 950 1st speed

Rack travel in mm : 15.00...15.10

Del.quantity cm3/: 23.0...23.2

100 s: (22.7...23.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm: 5.6...5.8 Del.quantity cm3/: 3.8...4.4

100 s: (3.6...4.6)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 325 : 1.30...1.60 travel mm

rpm : 450 2nd speed

: 2.80...3.10 travel mm

rpm : 800 3rd speed

: 5.70...5.90 travel mm

rpm : 1050 4th speed

: 7.80...8.10 travel mm

: 1200 5th speed rpm

: 9.50...9.80 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

Speed rpm : 1150 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version 2nd pressure hPa : 230 rpm : 950 Rack travel in m: 10.60...10.70 Speed Aneroid pressure h: 900 3rd pressure hPa : 535 Del.quantity : 230.0...232.0 Rack travel in m: 13.20...13.50 1000 : (227.9...235.0) : 5.00 START CUT-OUT Spread cm3 1000 : (9.00) 1/min: 270 (280) Speed RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 58...66 1st version Aneroid pressure h: 900 : 650 Testing: Speed rpm Del.quantity cm3/: 252.0...258.0 1000 s: (249.0...261.0) 1st rack travel in: 14.00 rpm : 990...1000 Speed cm3 : 10.002nd rack travel in: 4.00 Spread 1000 s: (14.0) : 1135...1165 Speed rom Aneroid pressure h: 900 4th rack travel in: 1250 Speed : 0.00...1.00 Speed rpm rom Del.quantity cm3/: 199.0...201.0 * 1000 s: (186.0...213.5) LOW IDLE 1 Aneroid pressure h: -Control lever Speed rpm : 400 Del.quantity cm3/ : 144.0...148.0 position degrees: 13...21 1000 s: (142.0...150.0) Testing: Speed : 275 rom Minimum rack trave: 6.20 : 325 BREAKAWAY rpm Rack travel in mm : 5.60...5.80 1st version CONSTANT REGULATION 1mm rack travel less than rpm : 325...550 Speed full load rack tr: 14.00 TORQUE CONTROL rpm : 990...1000 Speed Dimension a mm Torque control curve - 1st version STARTING FUEL DELIVERY 1st speed rpm : 950 Rack travel in m: 15.00...15.10 Speed rpm : 100 Del.quantity cm3/ : 145.0...185.0 1000 s: (135.0...195.0) rpm : 650 2nd speed Rack travel in m: 14.50...14.70 3rd speed rpm : 500 Rack travel in m: < 14.00 Rack travel in mm : 11.10...11.50 Aneroid/Altitude LOW IDLE Compensator Test Speed rpm Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 38.0...44.0 1000 s: (36.0...46.0) 1st version Setting cm3 : 8.00 : 950 Speed rpm Spread 1000 s: (12.00) hPa : 900 Pressure Rack travel mm : 15.00...15.10 Remarks: : MACK # 313GC5180P2 Measurement 1/min: 950 Speed Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 1st pressure hPa : -Rack travel in m: 9.00...9.40 start of delivery

Bow dimension: Sliding-sleeve position = 37.0 mm * This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Note remarks

Test sheet : MAC 16,0 a Edition : 23.03.90 : 31.10.89 Replaces Test oil : ISO-4113

Combination no. : 0 402 748 802

Injection pump

: PES8P120A920/4LS7159 Pump designation

: 0 412 728 801 EP type number

Governor

: RQV325...1050PA848-Governor design.

21K

: 0 421 815 201 Governer no.

Customer-spec. information Customer : MACK

: EE9 502 Engine

1st version kW : 368.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 9.00...12.00 Firing order : 1-2-7-8-6-3

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 630

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 20.7...20.9

100 s: (20.4...21.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

1.30...1.60 travel mm

rpm : 450 2nd speed

: 2.30...2.70 travel mm

rpm : 800 3rd speed

: 4.40...4.80 travel mm

: 1050 4th speed rpm

: 6.90...7.10 travel mm

: 1200 5th speed rom

: 8.90...9.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

> Degree: -1 rpm : 1220

Speed Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

2nd pressure hPa : 195 Rack travel in m: 10.20...10.30 3rd pressure hPa : 410 1st version rpm : 630 Speed Aneroid pressure h: 1200 : 207.0...209.0 Rack travel in m: 12.10...12.50 Del.quantity 1000 : (204.9...212.0) : 5.00 START CUT-OUT Spread cm3 1000 : (9.00)Speed 1/min : 280 (290) RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 57...65 1st version Aneroid pressure h: 1200 : 1050 Testina: rpm Del.quantity cm3/: 202.0...208.0 1000 s: (199.0...211.0) 1st rack travel in: 12.10 rpm : 1095...1105 Speed 2nd rack travel in: 4.00 cm3 : 10.00Spread rpm : 1180...1210 1000 s: (14.0) Speed 4th rack travel in: 1300 Aneroid pressure h: 1200 Speed rpm : 850 Del.quantity cm3/ : 159.0...161.0 * rpm : 0.00...1.00Speed 1000 s: (151.0...173.5) LOW IDLE 1 Control Lever Aneroid pressure h: position degrees: 9...17 rpm : 400 Speed Del.quantity cm3/: 170.5...174.5 1000 s: (168.5...176.5) Testing: Speed : 275 rom Minimum rack trave: 1.50 : 325 BREAKAWAY Speed rpm Rack travel in mm : 4.80...5.00 1st version CONSTANT REGULATION 1mm rack travel less than rpm : 325...600 Speed full load rack tr: 12.10 TORQUE CONTROL Speed rpm : 1095...1105 Dimension a mm :? Torque control curve - 1st version STARTING FUEL DELIVERY rpm : 630 1st speed Rack travel in m: 11.90...12.00 rpm : 1050 Speed rpm : 100 2nd speed Del.quantity cm3/: 150.0...190.0 Rack travel in m: 13.10...13.30 3rd speed rpm : 500 1000 s: (145.0...195.0) Rack travel in m: < 11.30 Rack travel in mm : 9.50...9.90 Aneroid/Altitude LOW IDLE Compensator Test Speed rpm Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 1st version 1000 s: (38.0...48.0) Setting cm3 : 8.00: 1050 Spread Speed rpm 1000 s: (12.00) Pressure hPa : 1200 Rack travel mm : 13.10...13.30 Remarks: Measurement : MACK # 313GC5178P2 Speed 1/min: 1050 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 1st pressure hPa : -Rack travel in m: 9.10...9.50 start of delivery

Bow dimension:
Sliding-sleeve position = 37.0 mm
* This test specification applies only
to the engine/nozzle-and-holder
assemblies on an injection-pump test
bench: setting for test equipment,
check value for engine equipment.

Note remarks

: MAC 15,0 b1 : 01.02.90 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 748 803

Injection pump

Pump designation : PES8P120A920/4LS7184

EP type number : 0 412 728 802

Governor

Governor design. : RQV325...950PA848-22

: 0 421 815 202 Governer no.

Customer-spec. information : MACK Customer

: E9 450 Engine

: 331.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.55...3.65 : (3.50...3.70) Prestroke mm

Rack travel in mm : 11.00...13.00 Firing order : 1-2-7-8-4-5-6-3

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 950

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 21.0...21.2

100 s: (20.7...21.5)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed

Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 3.8...4.4 100 s: (3.6...4.6)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.40...1.70 travel mm

2nd speed rpm : 450

: 2.80...3.10 travel mm

: 800 3rd speed rpm

travel mm : 5.70...5.90

: 1050 4th speed rpm

: 7.80...8.10 travel mm

: 1200 5th speed rpm

: 9.60...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1145 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version 1st pressure hPa : rpm : 950 Rack travel in m: 8.70...9.10 Speed Aneroid pressure h: 900 2nd pressure hPa : 230 Del.quantity : 210.0...215.0) Rack travel in m: 10.20...10.30 3rd pressure hPa : 535 : 5.00 Rack travel in m: 12.60...13.00 cm3 Spread 1000 : (9.00) START CUT-OUT RATED SPEED 1/min : 270 (280) Speed 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 56...64 Testing: 1st version 1st rack travel in: 12.90 Aneroid pressure h: 900 rpm : 990...1000 : 650 Speed Speed rpm Del.quantity cm3/: 216.0...222.0 1000 s: (213.0...225.0) 2nd rack travel in: 4.00 : 1125...1155 Speed rpm cm3 : 10.00 4th rack travel in: 1250 Spread 1000 s: (14.0) Speed rpm : 0.00...1.00Aneroid pressure h: 900 LOW IDLE 1 Speed rpm Del.quantity cm3/: 199.0...201.0 * 1000 s: (186.0...213.5) Control lever position degrees: 12...20 Aneroid pressure h: rpm : 400 Speed Testing: Del.quantity cm3/: 144.0...148.0 Speed : 275 rpm 1000 s: (142.0...150.0) Minimum rack trave: 6.00 : 325 rpm Rack travel in mm : 5.40...5.60 BREAKAWAY CONSTANT REGULATION rpm : 325...500 1st version Speed 1mm rack travel less than TORQUE CONTROL Dimension a mm :? full load rack tr: 12.90 Torque control curve - 1st version rpm : 990...1000 Speed rpm : 950 1st speed Rack travel in m: 13.90...14.00 STARTING FUEL DELIVERY rack travet in m: 13.70...14.00 ad speed rpm : 650
Rack travel in m: 13.20...13.40 ad speed rpm : 750
Rack travel in m: 13.70...13.90 2nd speed Speed rpm : 100 Del.quantity cm3/ : 145.0...185.0 1000 s: (135.0...195.0) Rack travel in mm : 11.00...11.40 3rd speed 4th speed rpm : 500 Rack travel in m: < 12.40 Aneroid/Altitude LOW IDLE Compensator Test Speed rpm : 325 Rack travel in mm : 5.40...5.60 Del.quantity cm3/: 38.0...44.0 1000 s: (36.0...46.0) 1st version Setting : 950 cm3 : 8.00Speed Spread MC hPa : 900 1000 s: (12.00) Pressure : 13.90...14.00 Rack travel mm Remarks: : MACK # 313GC5180P4 Measurement 1/min: 950 Speed Setting and blocking of pointer of

start-of-delivery sensor on cyl. 1 start of delivery

Bow dimension:

Sliding-sleeve position = 37.0 mm

* This test specification applies only
to the engine/nozzle-and-holder
assemblies on an injection-pump test
bench: setting for test equipment,
check value for engine equipment.

Note remarks

Test sheet : MB 11,7 g 1 : 05.03.90 Edition Replaces : 21.8.87 : ISO-4113 Test oil

: 0 402 776 803 Combination no.

Injection pump

Pump designation: PES6P120A720LS7107-1

EP type number : 0 412 726 805

Governor

Governor design. : RSV350...750P0A520-1

: 0 421 833 262 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M447 A

: 180.0 1st version kW : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 14.80...14.90

Del.guantity cm3/: 22.4...22.6

100 s: (22.1...22.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.02nd speed Rack travel in mm : 5.5...5.8 Del.quantity cm3/ : 1.4...2.0 100 s: (1.1...2.3)

Spread cm3 : 0.8100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x: 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 224.0...226.0 Del.quantity 1000 : (221,0...229.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 24...32

Testing:

1st rack travel in: 13.80 Speed rpm : 750...755

2nd rack travel in: 4.00

rpm : 775...788 Speed

4th rack travel in: 1000

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 63...71

Setting point w/out bumper spring

: 350 rpm Rack travel in mm : 5.6

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 rpm : 350 Speed

Rack travel in mm : 5.50...5.70

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.80 rpm : 750...755 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 230.0...250.0 1000 s: (226.0...254.0)

Remarks:

Observe VDT-I-420/120

APPLICATION

Generator

Note remarks

Test sheet : MB 12,0 c 1 : 31.07.90 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 776 805A

Injection pump

Pump designation : PES6P120A720LS7155

: 0 412 726 812 EP type number

Governor

Governor design. : RSV350...1050P0A529-

: 0 421 833 295 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M447 LA

1st version kW : 250.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 23.3...23.5

100 s: (23.0...23.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm: 4.2...4.7 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9) cm3 : 0.8

Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 1400

Del.quantity : 233.0...235.0 1000 : (230.0...238.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever position degrees: 100...108 Testing: 1st rack travel in: 11.70 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm: 1150...1180 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 74...82 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 4.4 : 350 Speed rpm Rack travel in mm : 4.20...4.70 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 650 Pressure : 11.70...11.90 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 9.80...10.00 2nd pressure hPa : 400 Rack travel in m: 10.20...10.40 3rd pressure hPa : 850 Rack travel in m: 12.30...12.50 4th pressure hPa : 950 Rack travel in m: 12.60...12.80 5th pressure hPa : -Rack travel in m: 9.80...10.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 650 rpm : 600 Speed Del.quantity cm3/: 198.0...201.0 1000 s: (195.0...204.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -

: 500

rpm

Del.quantity cm3/: 151.0...154.0 1000 s: (148.0...157.0) Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.70 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0) Remarks: :

Speed

Note remarks

Test sheet : MB 11,7 c 3 : 19.03.90 Edition

: 29.3.89 Replaces : ISO-4113 Test oil

: 0 402 776 806 Combination no.

Injection pump

Pump designation : PES6P120A720LS7120

: 0 412 726 803 EP type number

Governor

: RSV350...1050P0A529-Governor design.

: 0 421 833 317 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M447 A Engine

: 213.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm : 650 1st speed

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 20.2...20.4

100 s: (19.9...20.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0Rack travel in mm : 5.6...5.8

Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 650 Speed Aneroid pressure h: 650

: 202.0...204.0 Del.quantity

1000 : (199.0...207.0)

: 5.00 cm3 Spread : (9.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing: 1st rack travel in: 12.30 rpm : 1080...1090 Speed 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 22...30 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.7 Speed rpm : 350 Rack travel in mm : 5.60...5.80 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 13.30...13.50 rpm : 950 2nd speed Rack travel in m: 13.70...13.90 rpm : 875 3rd speed Rack travel in m: 14.20...14.40 rpm : 750 4th speed Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 650 Pressure : 14.00...14.20 Rack travel mm Measurement Speed $1/\min: 600$ 1st pressure hPa : 300 Rack travel in m: 12.30...12.50 2nd pressure hPa : 400 Rack travel in m: 13.20...13.40 3rd pressure hPa : 850 Rack travel in m: 14.30...14.50 4th pressure hPa : -Rack travel in m: 11.30...11.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1030 Speed

Del.quantity cm3/: 194.0...197.0 1000 s: (191.0...200.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm Del.quantity cm3/: 219.0...224.0 1000 s: (216.0...227.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.30 Speed rpm : 1080...1090

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0 1000 s: (186.0...214.0)

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 S : 10.08.90 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 403 436 112 Injection pump Pump designation : PES6MW100/120RS1206 EP type number : 0 413 406 197 Governor Governor design. : RQV350...1200MW78-4 : 0 420 083 232 Governer no. Customer-spec. information Customer : CUMMINS Engine : 6 CTA : 179.0 1st version kW Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 : 1 680 750 014 Test lines Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 004

: 3.05...3.15 Prestroke mm : (3.00...3.20) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1200 Rack travel in mm : 11.70...11.80 Del.guantity cm3/: 14.5...14.7 100 s: (14.3...14.9) cm3 : 0.3Spread 100 s: (0.6) rpm : 350.02nd speed Rack travel in mm: 5.0...5.2 Del.quantity cm3/: 1.1...1.5 100 s: (0.8...1.7) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1400 1st speed travel mm : 8.80...9.20 rpm : 1200 2nd speed : 7.30...7.50 rpm : 600 travel mm 3rd speed : 4.00...4.60 travel mm : 350 4th speed rpm : 1.80...2.20 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1200 Speed Aneroid pressure h: 900 : 145.0...147.0 Del.quantity 1000 : (143.0...149.0) : 3.50 Spread cm3 : (6.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 54...62

Testing:

1st rack travel in: 10.70

Speed rpm: 1265...1275 2nd rack travel in: 4.00

Speed rpm : 1425...1455 4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 10...18

Setting point w/out bumper spring

rpm

Rack travel in mm: 5.1

Testing:

: 100 Speed rpm

Minimum rack trave: 6.50

rpm : 350 Speed

Rack travel in mm : 5.00...5.20

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rpm

Pressure hPa : -

: 8.90...9.00 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 265

Rack travel in m: 9.70...9.80

2nd pressure hPa : 505

Rack travel in m: 10.90...11.20 3rd pressure hPa : 900

Rack travel in m: 11.70...11.80

START CUT-OUT

Speed 1/min: 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rom : 500 Speed

Del.quantity cm3/: 76.0...78.0

1000 s: (74.0...80.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1265...1275

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 205.0...225.0

1000 s: (202.0...228.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 11.0...15.0

1000 s: (8.5...17.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark/lock = 8.0° angular displacement of the cam after start of delivery of cylinder 1.

Note remarks

: 16.08.90 : 25.08.87 Edition Replaces Test oil : ISO-4113

: 0 403 444 113 Combination no.

Injection pump

Pump designation : PES4MW100/720RS1151

: 0 413 404 104 EP type number

Governor

Governor design. : RQV300...1300MW50-3

: 0 420 083 129 Governer no.

Customer—spec. information Customer : MB-NFZ

Engine : OM 364 LA

1st version kW : 100.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Test sheet : MB 4,0 A 20

Phasing

: 0-90-180-270

: 1-3-4-2

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

Firing order

1st speed

rpm : 1300

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm: 6.8...6.9 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1340 1st speed

: 8.50...8.70 travel mm

rpm : 1450 2nd speed

: 9.50...9.90 travel mm

: 500 3rd speed rom

: 2.70...3.30 travel mm

: 300 4th speed rpm

: 1.30...1.70 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 700

: 98.0...100.0 Del.quantity

1000 : (96.0...102.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

006

1st version Control lever position degrees: 49...57 Testing: 1st rack travel in: 11.60 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1445...1475 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.8 Testina: : 100 Speed rpm Minimum rack trave: 8.40 300 Speed rpm Rack travel in mm : 6.80...6.90 CONSTANT REGULATION rom : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Setting pm : 500 hPa : 200 Speed rpm Pressure : 11.30...11.40 Rack travel mm Measurement Speed $1/\min : 500$ 1st pressure hPa : -Rack travel in m: 10.50...10.60 2nd pressure hPa : 335 Rack travel in m: 12.10...12.40 3rd pressure hPa : 700 Rack travel in m: 12.60...12.70 START CUT-OUT 1/min: 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 600 Del.quantity cm3/: 82.5...85.5 1000 s: (80.0...88.5)

Spread cm3: 5.00 1000 s: (7.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 49.0...51.0 1000 s: (47.0...53.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 85.0...95.0 1000 s: (82.0...98.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.80...6.90
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

Note remarks

Test sheet : MB 4,0 D 21

: 16.08.90 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 444 114

Injection pump

Pump designation : PES4MW100/720RS1151

: 0 413 404 104 EP type number

Governor

Governor design. : RQV300...1300MW50-4

: 0 420 083 149 Governer no.

Customer-spec. information

Customer : MB-NFZ

: OM 364 LA Engine

: 100.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3,65...3,85)

Rack travel in mm : 9.00...12.00

008

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm : 6.8...6.9

Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1340 1st speed

: 8.50...8.70 travel mm rpm : 1450 2nd speed

travel mm : 9.50...9.90

3rd speed : 500 rpm

2.70...3.30 travel mm 300 4th speed rpm

: 1.30...1.70 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300Speed

Aneroid pressure h: 700

Del.quantity : 90.0...102.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 49...57 Testina: 1st rack travel in: 11.60 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1445...1475 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.8 Testing: Speed rpm : 100 Minimum rack trave: 8.40 rpm : 300 Speed Rack travel in mm : 6.80...6.90 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 200 Pressure : 11.30...11.40 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.50...10.60 2nd pressure hPa : 335 Rack travel in m: 12.10...12.40 3rd pressure hPa : 700 Rack travel in m: 12.60...12.70 START CUT-OUT 1/min: 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 600 Del.quantity cm3/ : 82.5...85.5 1000 s: (80.0...88.5)

cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 49.0...51.0 1000 s: (47.0...53.0) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 11.60 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 85.0...95.0 1000 s: (82.0...98.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.80...6.90 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 4,0 A 25 Edition : 16.08.90 Replaces : ISO-4113 Test oil : 0 403 444 115 Combination no. Injection pump Pump designation : PES4MW100/720RS1127 EP type number : 0 413 404 103 Governor : RQV300...1200MW48-6 Governor design. Governer no. : 0 420 083 157 Customer-spec. information Customer : MB-NFZ : 0M364A Engine 1st version kW : 77.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: 1-3-4-2 Firing order Phasing : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rom: 1200 1st speed Rack travel in mm : 11.00...11.10 Del.quantity cm3/: 7.5...7.7 100 s: (7.3...7.9) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 8.2...8.4 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) $^{\circ}$ cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1325 1st speed : 9.40...9.80 travel mm rpm : 1250 2nd speed : 8.60...8.80 travel mm rpm : 550 3rd speed : 3.00...3.60 travel mm rpm : 300 4th speed : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1250 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1200 Speed : 75.0...77.0 Del.quantity 1000 : (73.0...79.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED

1st version

010

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.70...3.80

: (3.65...3.85)

Control lever position degrees: 48...56 Testing: 1st rack travel in: 10.00 rpm : 1240...1250 Speed 2nd rack travel in: 4.00 rpm : 1310...1340 Speed 4th rack travel in: 1400 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 8.3 Testing: Speed rpm Minimum rack trave: 9.70 rpm : 300 Speed Rack travel in mm : 8.20...8.40 TORQUE CONTROL Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 11.00...11.10 rpm : 600 2nd speed Rack travel in m: 12.00...12.20 rpm : 800 3rd speed Rack travel in m: 11.60...11.80 th speed rpm : 900 4th speed Rack travel in m: 11.20...11.40 START CUT-OUT 1/min : 200 (230) Speed FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 65.0...68.0 1000 s: (62.5...70.5) cm3 : 5.00Spread 1000 s: (7.0) : 800 Speed rom Del.quantity cm3/: 70.0...73.0 1000 s: (67.5...75.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 8.20...8.40 Del.quantity cm3/ : 10.0...14.0 1000 s: (7.5...16.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

D11

Note remarks

Test sheet : FIA 8,1 C 2 : 06.09.90 Edition : 04.86 Replaces : ISO-4113 Test oil

: 0 403 446 114 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1012

: 0 413 406 008 EP type number

Governor

Governor design. : RQV300...1100MW19

: 0 420 083 014 Governer no.

Customer-spec. information : IVECO-OM Customer

: 8365, 25, 500 Engine

1st version kW : 132.4 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2,90...3.00

: (2.85...3.05)

Rack travel in mm : 9.00...12.00

: 1- 5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300 2nd speed

Rack travel in mm : 6.3...6.4 Del.quantity cm3/ : 1.1...1.5

100 s: (0.9...1.8)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1100 1st speed : 8.5...8.7 travel mm rpm : 800 2nd speed

: 5.4...5.7 travel mm

rpm : 500 3rd speed

: 2.9...3.4 travel mm

: 300 4th speed rpm travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100 Speed Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 500

Del.quantity : 96.0...98.0

1000 : (94.0...100.0)

: 3.5 Spread cm3

: (6.0) 1000

RATED SPEED

1st version

position degrees: 45...53 Testina: 1st rack travel in: 10.50 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 10...18 Setting point wout bumper spring : 300 rpm Rack travel in mm: 6.3 Testina: Speed : 100 rpm Minimum rack trave: 8.0 Speed rpm : 300 Rack travel in mm : 6.3...6.4 Rack travel in mm: 2.0 rpm : 385...445 Speed Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rpm hPa : 270 Pressure : 12.10...12.20 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 200 Rack travel in m: 11.50...11.70 2nd pressure hPa : 500 Rack travel in m: 12.40...12.50 3rd pressure hPa : --Rack travel in m: 11.20...11.30 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 500 : 700 Speed rpm Del.quantity cm3/: 101.0...105.0 1000 s: (99.0...107.0) Spread cm3: 5.0 1000 s: (7.0)

Control lever

Aneroid pressure h: Speed rpm : 500
Del.quantity cm3/ : 75.0...77.0
1000 s: (73.0...78.0)
Spread cm3 : 3.5
1000 s: (6.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50 Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 160 Rack travel in mm : 19.0

LOW IDLE

Remarks:

Test electrically-released starting quantity (EES) with 12 volts

After changing plunger—and—barrel assembly from 1 418 415 045 to ..083, perform setting/testing in accordance with test specifications of injection—pump assembly 0 403 446 203.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : RVI 8,8 F : 06.07.90 Test sheet Edition Replaces : 09.06.89 : ISO-4113 Test oil : 0 403 446 129 Combination no. Injection pump Pump designation : PES6MW100/320RS1016 : 0 413 406 010 EP type number Governor Governor design. : RQV300...1400MW25-2 Governer no. : 0 420 083 048 Customer-spec. information Customer : RVI : MIDRO6.02-12 Engine : 125.0 1st version kW Rated speed : 2800 TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 2 417 413 033 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 173...176 pressure, bar Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1400 Rack travel in mm : 11.10...11.20 Del.quantity cm3/: 9.1...9.3 100 s: (8.9...9.5) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.02nd speed Rack travel in mm : 6.30...6.50 Del.quantity cm3/ : 1.5...1.9 100 s: (1.2...2.1) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1400 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1400 Aneroid pressure h: 700 : 91.0...93.0 Del.quantity 1000 : (89.0...95.0) cm3 : 3.50 1000 : (6.00) Spread RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 10.10 rpm : 1450...1460 Speed 2nd rack travel in: 4.00 rpm : 1565...1595 Speed 4th rack travel in: 1700 : 0.00...1.00 Speed rpm LOW IDLE 1

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.00...3.10

: (2.95...3.15)

Control lever

position degrees: 9...17

Setting point w/out bumper spring

: 300 rpm Rack travel in mm: 6.4

: 300 Speed **CDM**

Rack travel in mm : 6.30...6.50

Rack travel in mm : 2.00

Speed rpm : 490...550

Speed rpm : 200

Maximum rack trave: 7.90

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 500 Pressure

Rack travel mm : 11.10...11.20

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.50

2nd pressure hPa : 120

Rack travel in m: 9.90...10.00

3rd pressure hPa : 155

Rack travel in m: 10.70...10.80

START CUT-OUT

Speed 1/min: 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 900 Del.quantity cm3/ : 86.0...90.0

1000 s: (84.0...92.0)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 52.0...54.0 1000 s: (50.0...56.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 94.0...104.0

1000 s: (91.0...107.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 15.0...19.0

1000 s: (12.5...21.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark is 8° after start of delivery with control-rod

travel = 10.5 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC 7,6 A 1 : 12.07.1990 Edition : 11.85 Replaces : ISO-4113 Test oil : 0 403 446 131 Combination no. Injection pump Pump designation : PES6MW100/320RS1103 EP type number : 0 413 406 103 Governor Governor design. : RQV350...1300MW43 Governer no. : 0 420 083 050 Customer-spec. information Customer : NAVISTAR : DT-466C Engine : 154.5 1st version kW : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 037 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 016 assembly **Opening** : 207...210 pressure, bar Orifice plate : 0.5 diameter mm Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

(A) Injection pump setting values Insp. values in parentheses

: 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 10.30...10.50 100 s: (10.10...10.70) cm3 : 0.35Spread 100 s: (0.6) rpm : 350 2nd speed Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 1.60...2.00 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1375 Rack travel in mm : 15.6...16.4 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 900 Aneroid pressure h: 900 Del.quantity : 103.0...107.0) : 3.50 Spread cm3 1000 : (6.0)RATED SPEED 1st version Control lever position degrees: 60...65 Testing: 1st rack travel in: 10.90 rpm : 1340...1345 Speed 2nd rack travel in: 4.00 rpm : 1475...1485 Speed 5th rack travel in: 1600 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

: 350 rpm Rack travel in mm: 6.10

Testina:

: 100 rpm Speed Minimum rack trave: 9.0

rpm

Rack travel in mm: 6.0...6.2

CONSTANT REGULATION

rpm : 370...650 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 280 Pressure

: 10.40...10.50 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : 900

Rack travel in m: 11.90...12.00

2nd pressure hPa : -

Rack travel in m: 9.60...9.70

3rd pressure hPa : 510

Rack travel in m: 11.20...11.50

START CUT-OUT

1/min : 250 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 1300 Speed rpm

Del.quantity cm3/: 107.0...111.0 1000 s: (105.0...113.0)

cm3 : 6.5Spread 1000 s: (7.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 63.5...65.5 1000 s: (61.5...67.5)

BREAKAWAY

1st version

D17

1mm rack travel less than

full load rack tr: 10.90

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0

1000 s: (137.0...183.0)

LOW IDLE

: 350 Speed rpm

Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.5

1000 s: (5.5)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

: IHC 7,6 B 1 : 12.07.1990 Test sheet Edition : 12.85 Replaces Test oil : ISO-4113

Combination no. : 0 403 446 135

Injection pump

Pump designation : PES6MW100/320RS1107

EP type number : 0 413 406 105

Governor

Governor design. : RQV350...1200MW43 Governer no. : 0 420 083 054

Customer-spec. information Customer : NAVISTAR

: DT-466C Engine

: 121.3 1st version kW : 2400 : 2400 Rated speed Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 037

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 016 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.00...4.10 Prestroke mm : (3.95...4.15)

Rack travel in mm : 9.00...12.00

: 1- 5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 800 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.35

100 s: (0.6)

2nd speed rpm : 350

Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.60...2.00

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1375 Speed

Rack travel in mm : 15.6...16.4

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800 Aneroid pressure h: 900

: 84.0...86.0 Del.quantity 1000 : (82.0...88.0)

cm3 : 3.50

1000 : (6.0)

RATED SPEED

Spread

1st version

Control lever

position degrees: 58...63

Testing:

1st rack travel in: 10.10

Speed rpm : 1240...1250 2nd rack travel in: 4.00

rpm : 1365...1375 Speed

5th rack travel in: 1450

: 0.00...1.00 Speed rom LOW IDLE 1 Control lever position degrees: 10...18 Setting point w/out bumper spring Speed : 350 rpm Rack travel in mm: 6.0 Testing: Speed : 100 rom Minimum rack trave: 9.0 rpm : 350 Speed Rack travel in mm: 5.9...6.1 CONSTANT REGULATION rpm : 370...650 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 900 Pressure : 11.10...11.20 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 9.80...9.90 2nd pressure hPa : 135 Rack travel in m: 10.10...10.20 3rd pressure hPa : 300 Rack travel in m: 10.70...11.00 START CUT-OUT Speed $1/\min : 250$ FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 Speed : 1200 rpm Del.quantity cm3/: 86.5...90.5 1000 s: (84.5...92.5) Spread cm3 : 6.5 1000 s: (7.0) Aneroid pressure h: -

: 500

rpm

Del.quantity cm3/: 61.5...63.5 1000 s: (59.5...65.5)

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1240...1250
STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0 1000 s: (137.0...183.0)

LOW IDLE

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.00...3.10 : (2.95...3.15) Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 : IHC 7,6 G : 12.07.1990 Test sheet : 1- 5- 3- 6- 2- 4 Firing order Edition : 11.85 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing : 0.50 (0.75) Tolerance + - ° Combination no. : 0 403 446 139 Injection pump BASIC SETTING Pump designation : PES6NW100/320RS1108 EP type number rpm: 850 : 0 413 406 106 1st speed Governor Rack travel in mm : 10.50...10.60 Governor design. : RQV350...1200MW43-5 : 0 420 083 058 Governer no. Del.quantity cm3/ : 8.3...8.5 Customer-spec. information Customer : NAVISTAR 100 s: (8.1...8.7) Engine : DT-466B Spread cm3 : 0.351st version kW : 121.4 100 s: (0.6) Rated speed : 2400 2nd speed rpm : 350
Rack travel in mm : 5.8...5.9
Del.quantity cm3/ : 1.60...2.00 Rated speed : 2400 TEST BENCH REQUIREMENTS 100 s: (1.3...2.2) Test oil Spread cm3 : 0.3inlet temp. °C 100 s: (0.5) : 38...42 Overflow valve GUIDE SLEEVE POSITION : 2 417 413 040 Control-lever position Degree: -1 rpm : 1375 Inlet press., bar : 2.80 Speed Rack travel in mm : 15.6...16.4 Test nozzle holder : 1 688 901 016 FULL LOAD DELIV. AT FULL LOAD STOP assembly 1st version Opening : 207...210 pressure, bar rpm : 850 Speed Aneroid pressure h: 900 : 83.5...85.5 Orifice plate Del.quantity 1000 : (81.5...87.5) diameter mm : 0.5 : 3.50 Spread cm3 1000 : (6.0) Test Lines : 1 680 750 008 RATED SPEED Outside diameter x Wall thickness 1st version x Length mm : 6.00X2.00X600 Control lever position degrees: 56...61 (A) Injection pump setting values Testing: Insp. values in parentheses

1st rack travel in: 9.50

5th rack travel in: 1460

Speed

Speed rpm : 1240...1250 2nd rack travel in: 4.00

rpm

: 1360...1370

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 10...18 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 5.85 Testing: Speed rpm : 100 Minimum rack trave: 9.0 rpm : 350 Speed Rack travel in mm: 5.8...5.9 CONSTANT REGULATION rpm : 360...640 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 205 Pressure : 9.70...9.80 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 900 Rack travel in m: 10.50...10.60 2nd pressure hPa : -Rack travel in m: 9.20...9.30
3rd pressure hPa : 340
Rack travel in m: 10.10...10.40 START CUT-OUT $1/\min : 250$ Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 : 1200 rpm Del.quantity cm3/: 88.5...92.5 1000 s: (86.5...94.5) cm3 : 6.5Spread 1000 s: (7.0)

1st version 1mm rack travel less than full load rack tr: 9.50 rpm : 1240...1250 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0 1000 s: (137.0...183.0) LOW IDLE rpm : 350 Speed Rack travel in mm: 5.8...5.9 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.5 Spread 1000 s: (5.5) Remarks: Perform pump setting only with IH hose with restriction of 1.2 mm diameter. Before checking sleeve position, first adjust latching. In unlatched condition, do not operate greater than n = 500 1/minSet low idle at stop screw. Set shutoff stop 1.5...2.0 mm before shutoff.

Speed

BREAKAWAY

Aneroid pressure h: -

rpm : 500

1000 s: (57.0...63.0)

Del.quantity cm3/: 59.0...61.0

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 17 Edition : 16.08.90 Replaces : 12.02.90 Test oil : ISO-4113 Combination no. : 0 403 446 150 Injection pump Pump designation : PES6MW100/720RS1120 EP type number : 0 413 406 112 Governor : RQV300...1300MW59 Governor design. Governer no. : 0 420 083 077 Customer-spec. information Customer : DB : 0M366LA Engine : 141.7 1st version kW : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 0-60-120-180-240-300 Phasing : 0.50 (0.75) Tolerance + - ° BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 8.6...8.8 100 s: (8.4...9.0) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 6.1...6.2 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 : 9.50...9.90 rpm : 1350 travel mm 2nd speed : 8.50...8.70 travel mm 3rd speed : 450 rom : 2.40...3.00 travel mm 4th speed rpm : 300 travel mm : 1.20...1.60 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1340 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300Speed Aneroid pressure h: 1000 : 86.0...88.0 Del.quantity 1000 : (84.0...90.0) : 3.50 Spread cm25 1000 : (6.00) RATED SPEED

Firing order

: 1-5-3-6-2-4

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.50...3.60

: (3.45...3.65)

1st version Control lever position degrees: 48...56 Testing: 1st rack travel in: 11.10 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1450...1480 Speed 4th rack travel in: 1530 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 82...90 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.1 Testing: rom : 100 Speed Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 6.10...6.20 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 310 Pressure Rack travel mm : 11.80...11.90 Measurement 1/min: 500 Speed 1st pressure hPa : 1000 Rack travel in m: 12.10...12.20 2nd pressure hPa : -Rack travel in m: 11.00...11.10 3rd pressure hPa : 280 Rack travel in m: 11.20...11.50 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 750 Del.quantity cm3/: 73.0...76.0

1000 s: (70.5...78.5)

Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 47.0...49.0 1000 s: (45.0...51.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 83.0...93.0 1000 s: (86.0...96.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 6.10...6.20

Speed rpm: 300
Rack travel in mm: 6.10...6.20
Del.quantity cm3/: 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3: 3.50
1000 s: (5.50)

Remarks:

Note remarks

Test sheet : RVI 8,8 P Edition : 06.07.90 : 12.09.86 Replaces Test oil : ISO-4113

: 0 403 446 154 Combination no.

Injection pump

Pump designation : PES6MW100/320RS1025 : 0 413 406 012 EP type number

Governor

Governor design. : RQ750MW42 : 0 420 082 009 Governer no.

Customer-spec. information Customer : RVI

Engine : MIDRO6.02-12

: 100.0 1st version kW : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 13.3...13.5

100 s: (13.1...13.7)

Spread cm3 : 0.3

100 s: (0.6)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 133.5...135.5 Del.quantity 1000 : (131.5...137.5)

cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 29...35

Testina:

1st rack travel in: 13.50

Speed rpm : 750...755 2nd rack travel in: 4.00

rpm : 795...805 Speed

4th rack travel in: 825

rpm : 0.00...1.00Speed

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50

rpm : 750...755 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 100.0...110.0

1000 s: (97.0...113.0)

Rack travel in mm : 19.00...21.00

Remarks:

•

Note remarks

Test sheet : MB 6,0 D 47 : 16.08.90 Edition : 12.02.90 Replaces : ISO-4113 Test oil

Combination no. : 0 403 446 156

Injection pump

Pump designation : PES6MW100/720RS1120

EP type number : 0 413 406 112

Governor

Governor design. : RQV300...1300MW59

: 0 420 083 077 Governer no.

Customer-spec. information

: DB Customer

: 0M366LA Engine

: 141.7 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

· 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

3.50...3.60 Prestroke mm

: (3.45...3.65) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

: 9.50...9.90 travel mm rpm : 1350 2nd speed

: 8.50...8.70 travel mm

3rd speed rpm : 450

: 2.40...3.00 travel mm

rpm : 300 4th speed : 1.20...1.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300Aneroid pressure h: 1000

: 86.0...88.0 Del.quantity 1000 : (84.0...90.0)

: 3.50 Spread cm3

: (6.00) 1000

RATED SPEED

1st version Control lever position degrees: 48...56 Testing: 1st rack travel in: 11.10 Speed rpm: 1340...1350 2nd rack travel in: 4.00 rpm : 1440...1470 Speed 4th rack travel in: 1530 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.1 Testina: Speed rpm : 100 Minimum rack trave: 8.00 : 300 Speed rpm Rack travel in mm : 6.00...6.20 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Settina pm : 500 hPa : 310 Speed rpm Pressure : 11.80...11.90 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 1000 Rack travel in m: 12.10...12.20 2nd pressure hPa : -Rack travel in m: 11.00...11.10 3rd pressure hPa : 280 Rack travel in m: 11.20...11.50 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed : 750 rom Del.quantity cm3/: 73.0...76.0 1000 s: (70.5...78.5)

Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 47.0...49.0 1000 s: (45.0...51.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 1340...1350 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 9.0...13.0

1000 s: (7.0...15.0)

cm3 : 3.50

1000 s: (5.50)

Remarks:

Spread

Note remarks

Test sheet : RVI 8,8 K 4 : 06.07.90 Edition : 12.01.90 Replaces Test oil : ISO-4113

Combination no. : 0 403 446 164

Injection pump

Pump designation: PES6MW100/320RS1016 : 0 413 406 010 EP type number

Governor

Governor design. : RQV300...1300MW25-4 : 0 420 083 094 Governer no.

Customer-spec. information Customer : RVI

: MIDRO6.02-12 Engine

: 113.Ú 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Open ind

: 173...176 pressure, bar

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

; 3.00...3.10 Prestroke mm

: (2.95...3.15) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 1.4...1.8

100 s: (1.1...2.0) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1300 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 700

Del.quantity : 85.5...87.5 1000 : (83.5...89.5)

: 3.50 : (6.00) Spread cm3

1000

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 9.80

rpm : 1370...1380 Speed

2nd rack travel in: 4.00

rpm : 1485...1515 Speed

4th rack travel in: 1650

: 0.00...1.00 Speed rpm

LOW IDLE 1

Control lever position degrees: 8...16 Setting point w/out bumper spring : 300 rom Rack travel in mm: 6.5 : 300 Speed rpm Rack travel in mm : 6.60...6.80 : 200 Speed rpm Maximum rack trave: 3.20 CONSTANT REGULATION rpm : 340...550 Speed Aperoid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 143 Pressure : 10.50...10.60 Rack travel mm Measurement Speed 1/min: 500 1st pressure hPa : 700 Rack travel in m: 10.80...10.90 2nd pressure hPa : -Rack travel in m: 10.00...10.10 3rd pressure hPa : 115 Rack travel in m: 10.00...10.30 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm_ : 900 Speed Del.guantity cm3/: 82.0...86.0 1000 s: (80.0...88.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 56.0...58.0 1000 s: (54.0...60.0)

BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.80 Speed rpm : 1370...1380 E01

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

rpm : 300 Speed Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5) cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

Note remarks

: MB 6,0 D 27 : 16.08.90 Test sheet Edition : 19.05.88 Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 179

Injection pump

Pump designation: PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

Governor design. : RQV300...1300MW74

Governer no. : 0 420 083 112

Customer-spec. information Customer : MB-NFZ

: 0M366LA Engine

: 127.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test Lines

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

3.70...3.80 Prestroke mm

: (3.65...3.85) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 7.3...7.5

100 s: (7.1...7.7)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.8...7.9 Del.guantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL rpm : 1340 1st speed

: 8.50...8.70 travel mm

rpm : 1450 2nd speed

: 9.50...9.70 travel mm

: 700 3rd speed rpm

: 3.90...4.50 rpm : 300 travel mm

4th speed

: 1.30...1.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1335 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

Del.quantity

: 73.0...75.0 1000 : (71.0...77.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

E02

Control lever position degrees: 50...58 Testina: 1st rack travel in: 10.00 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1425...1455 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring Speed rom Rack travel in mm: 7.8 Testing: Speed : 100 rpm Minimum rack trave: 9.70 : 300 Speed rpm Rack travel in mm : 7.80...7.90 CONSTANT REGULATION rpm : 330...600 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 11.00...11.10 2nd speed rpm : 750 Rack travel in m: 11.70...11.80 3rd speed rpm : 1125 Rack travel in m: 11.40...11.50 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/ : 68.0...70.0 1000 s: (66.0...72.0) cm3 : 5.00Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00

rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...7.90
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

E03

Speed

STARTING FUEL DELIVERY

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,0 0 21 Test sheet : 16.08.90 Edition Replaces : 16.05.88 Test oil : ISO-4113 Combination no. : 0 403 446 187 Injection pump Pump designation : PES6MW100/720RS1129 EP type number : 0 413 406 121 Governor Governor design. : RQV300...1300MW50-2 : 0 420 083 124 Governer no. Customer-spec. information Customer : DB : OM 366 LA Engine 1st version kW : 150.0 : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.70...3.80 Prestroke mm : (3.65...3.85)

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rbm: 1300 Rack travel in mm : 11.20...11.30 Del.quantity cm3/: 9.8...10.0 100 s: (9.6...10.2) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 5.5...5.6 Del.guantity cm3/: 0.9...1.1 100 s: (0.6...1.4) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1340 1st speed : 8.60...8.80 travel mm rpm : 1430 : 9.30...9.70 2nd speed travel mm 3rd speed rpm : 300 : 1.20...1.60 travel mm 4th speed rpm : 700 travel mm : 3.80...4.40 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1340 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300Speed Aneroid pressure h: 1000 : 98.0...100.0 Del.quantity 1000 : (96.0...102.0) : 3.50 Spread cm3 : (6.00) 1000

RATED SPEED

Rack travel in mm : 9.00...12.00

1st version Control lever position degrees: 51...59 Testina: 1st rack travel in: 10.20 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1430...1460 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 15...23 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testing: Speed : 100 rpm Minimum rack trave: 7.50 rpm : 300 Speed Rack travel in mm : 5.50...5.60 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 CONSTANT REGULATION rpm : 320...530 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 400 Pressure : 9.90...10.00 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 9.50...9.60 2nd pressure hPa : 500 Rack travel in m: 10.80...11.10 3rd pressure hPa : 1000 Rack travel in m: 11.20...11.30 START CUT-OUT 1/min: 220 (230) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

Speed rpm Del.guantity cm3/: 83.5...86.5 1000 s: (81.0...89.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 49.0...51.0 1000 s: (47.0...53.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.20 rpm : 1340...1350 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 88.0...98.0 1000 s: (85.0...101.0) LOW IDLE rpm Speed Rack travel in mm : 5.50...5.60 Del.quantity cm3/: 9.0...11.0 1000 s: (6.0...14.0) cm3 : 3.50 Spread 1000 s: (5.00) Remarks:

E05

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 85 : 16.08.90 Edition : 07.02.89 Replaces Test oil : ISO-4113 : 0 403 446 191 Combination no. Injection pump Pump designation : PES6MW100/720RS1144 : 0 413 406 138 EP type number Governor Governor design. : RQV300...1200MW48-5 : 0 420 083 140 Governer no. Customer-spec. information : MB-NFZ Customer : 0M366A Engine : 116.0 1st version kW : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1200 Rack travel in mm : 10.80...10.90 Del.guantity cm3/: 7.7...7.9 100 s: (7.5...8.1) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 8.0...8.1 Del.quantity cm3/: 1.0...1.4 100 s: (0.9...1.5) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1250 : 7.30...7.50 rpm : 1380 1st speed travel mm 2nd speed : 8.50...8.90 travel mm 3rd speed rpm : 500 : 2.70...3.30 travel mm rpm : 300 4th speed travel mm : 1.20...1.70 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1330 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1200 : 77.0...79.0 Speed Del.quantity 1000 : (75.0...81.0) : 3.50 Spread cm3 1000 : (6.00) : 3.70...3.80 RATED SPEED : (3.65...3.85) Rack travel in mm : 9.00...12.00 1st version

Firing order

Phasing

: 1-5-3-6-2-4

: 0-60-120-180-240-300

E06

Prestroke mm

Control lever position degrees: 46...54 Testing:

1st rack travel in: 9.80 rpm : 1250...1260 Speed 2nd rack travel in: 4.00

Speed rpm : 1350...1380 4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever position degrees: 16...24

Setting point w/out bumper spring

rom : 300 Speed Rack travel in mm: 8.0

Testing:

: 100 Speed rpm Minimum rack trave: 9.80 rpm : 300 Speed

Rack travel in mm : 8.00...8.10

CONSTANT REGULATION

rpm : 330...500 Speed

TORQUE CONTROL Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 10.80...10.90 2nd speed rpm : 700

Rack travel in m: 11.10...11.20

3rd speed rpm : 800

Rack travel in m: 10.90...11.10

START CUT-OUT

1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 700 Speed rpm

Del.quantity cm3/: 62.0...64.0 1000 s: (60.0...66.0)

cm3 : 5.00

1000 s: (7.0)

BREAKAWAY

Spread

1st version 1mm rack travel less than

full load rack tr: 9.80

rpm : 1250...1260 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 80.0...90.0

1000 s: (77.0...93.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 8.00...8.10 Del.quantity cm3/: 10.0...14.0 1000 s: (9.0...15.0)

cm3 : 3.50Spread 1000 s: (5.00)

Remarks:

E07

Note remarks

: IHC 7,6 R22 Test sheet Edition : 06.09.90 : 15.08.89 Replaces Test oil : ISO-4113

Combination no. : 0 403 446 192

Injection pump

Pump designation : PES6MW100/320RS1112

: 0 413 406 108 EP type number

Governor

Governor design. : RQV350...1300MW72-2

: 0 420 083 141 Governer no.

Customer-spec. information Customer : NAVISTAR

: DT-466 Engine

: 154.5 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 037

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 016 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,5

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.00...4.10 : (3.95...4.15) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rom : 9001st speed

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350 2nd speed

Rack travel in mm: 6.4...6.5

Del.quantity cm3/: 1.9...2.3 100 s: (1.6...2.5)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 8.30...8.50 travel mm

rpm : 1460 2nd speed

: 9.10...9.50 travel mm

: 550 3rd speed rpm

: 3.10...3.70 travel mm

: 350 4th speed rpm travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Del.quantity : 86.0...88.0 1000 : (84.0...90.0)

: 3.5 Spread cm3

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 45...50

Testina:

1st rack travel in: 9.00

rpm : 1360...1380 Speed

2nd rack travel in: 4.00

rpm : 1460...1470 Speed

4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 350

Rack travel in mm: 6.4

Testing:

Speed rpm : 100 Minimum rack trave: 9.00 rpm

Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

: 300...450 Speed rpm

START CUT-OUT

1/min: 180 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 1300 Speed rpm

Del.quantity cm3/: 88.0...92.0

1000 s: (86.0...94.0) cm3 : 5.0 1000 s: (7.0)

Spread

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00

rpm : 1360...1380 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm: 19.0...21.0

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.40...6.50

Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5)

cm3 : 3.5 1000 s: (6.0) Spread

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

ED9

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC 7,6 R20 : 20.07.90 Edition : 19.12.88 Replaces : ISO-4113 Test oil Combination no. : 0 403 446 194 Injection pump Pump designation : PES6MW100/320RS1112 EP type number : 0 413 406 108 Governor Governor design. : RQV350...1300MW46-12 : 0 420 083 143 Governer no. Customer-spec. information Customer : NAVISTAR Engine : DTA-466 : 154.5 1st version kW : 2600 Rated speed TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 037

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 016

Opening .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,5

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 4.00...4.10 : (3.95...4.15)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 10.3...10.5

100 s: (10.1...10.7)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.5...5.6 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

rpm : 1460 2nd speed

: 9.10...9.50 travel mm rpm : 550 3rd speed

: 3.10...3.70 travel mm

: 350 4th speed rpm

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 800 Speed Aneroid pressure h: 800

Del.quantity : 103.0...105.0

1000 : (101.0...107.0) cm3 : 3.50

Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 44...49

2nd rack travel in: 4.00 Speed rpm : 1470...1480 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 9...17 Setting point w/out bumper spring : 350 rom Rack travel in mm: 5.5 Testing: Speed : 100 rom Minimum rack trave: 7.30 Speed rpm: 350 Rack travel in mm: 5.50...5.60 CONSTANT REGULATION rpm : 360...450 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 170 Pressure : 10.40...10.50 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.20 2nd pressure hPa : 230 Rack travel in m: 10.60...10.90 3rd pressure hPa : 800 Rack travel in m: 10.80...10.90 START CUT-OUT 1/min: 180 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 800 Speed rpm : 1200 Del.quantity cm3/ : 105.0...109.0 1000 s: (103.0...111.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -E11

Testing:

Speed

1st rack travel in: 9.80

rpm : 1365...1385

Speed rpm : 500 Del.quantity cm3/ : 87.0...89.0 1000 s: (85.0...91.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.80 rpm : 1365...1385 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed : 350 rpm Rack travel in mm : 5.50...5.60 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks:

enarks: :

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Note remarks

Test sheet : MB 6,0 D 40 : 20.07.90 : 17.05.90 Edition Replaces

Test oil : ISO-4113

: 0 403 446 207 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

Governor design. : RQ300/1300MW96 Governer no. : 0 420 082 032

Customer-spec. information Customer : MB-NFZ

: 0M366A Engine

: 125.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 11.00...11.10

Del.guantity cm3/: 7.7...7.9

100 s: (7.5...8.1)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.8...8.0 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 1425 : 9.50...9.90 travel mm

2nd speed rpm : 1350

travel mm : 7.80...8.00

3rd speed : 525 rom

travel mm : 4.90...5.50

4th speed man

: 300 : 2.10...2.50 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2 rpm : 1200

Rack travel in mm : 12.70...14.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed

rpm : 1300

: 77.0...79.0 Del.quantity

1000 : (75.0...81.0)

cm3: 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 34...42 Testina: 1st rack travel in: 10.00 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1425...1455 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 9...17 Setting point w/out bumper spring Speed rpm Rack travel in mm: 7.9 Testing: : 100 Speed rpm Minimum rack trave: 9.00 rpm : 300 Rack travel in mm : 7.80...8.00 TORQUE CONTROL Dimension a mm : 1.00 Torque control curve – 1st version 1st speed rpm : 1300 Rack travel in m: 11.00...11.10 rpm : 800 2nd speed Rack travel in m: 11.80...12.00 3rd speed rpm : 585 Rack travel in m: 12.00...12.20 4th speed rpm : 1100 Rack travel in m: 11.10...11.30 START CUT-OUT Speed 1/min : 180 (200) FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rpm Del.quantity cm3/ : 76.0...78.0 1000 s: (74.0...80.0) : 5.00 Spread cm31000 s: (7.) rpm : 585 Speed Del.quantity cm3/: 68.5...71.5 1000 s: (66.0...74.0) RACK STOP ADJUSTMENT

: 550

rpm

1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 7.80...8.00 Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) Spread cm3 : 3.501000 s: (5.50) Remarks: :

Speed

BREAKAWAY

Note remarks

: MB 6,0 D 53 Test sheet Edition : 16.08.90 Replaces : 07.10.88 Test oil : ISO-4113

: 0 403 446 212 Combination no.

Injection pump

Pump designation: PES6MW100/720RS1131

EP type number : 0 413 406 123

Governor

Governor design. : RQV300...1300MW68-1

: 0 420 083 169 Governer no.

Customer-spec. information

Customer : DB

: OM 366 LA Engine

1st version kW : 150.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1460 1st speed : 9.20...9.60 travel mm

: 1350 2nd speed rpm

travel mm : 8.10...8.30

3rd speed : 450 rpm

: 3.00...3.60 : 300 travel mm

4th speed rpm

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

Aneroid pressure h: 1000 Aneroid Del.quantity 1000

: 97.0...99.0

: (95.0...101.0)

: 3.50 Spread cm3

1000 : (6,00)

RATED SPEED

1st version rpm : 500 Speed Del.quantity cm3/: 52.0...54.0 Control lever 1000 s: (50.0...56.0) position degrees: 49...57 Testina: 1st rack travel in: 11.40 Speed rpm : 1340...1350 **BREAKAWAY** 2nd rack travel in: 4.00 1st version Speed rpm : 1455...1485 1mm rack travel less than 4th rack travel in: 1600 rpm : 0.00...1.00full load rack tr: 11.40 Speed rpm : 1340...1350 Speed LOW IDLE 1 Control lever STARTING FUEL DELIVERY position degrees: 14...22 Setting point w/out bumper spring rpm : 300 rpm : 100 Speed Rack travel in mm: 6.5 Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0) Testing: rpm : 100 Speed LOW IDLE Minimum rack trave: 8.00 rpm : 300 rpm : 300 Speed Rack travel in mm : 6.40...6.60 Rack travel in mm : 6.40...6.60 Del.quantity cm3/ : 9.0...13.0 1000 s: (7.0...15.0) Aneroid/Altitude cm3 : 3.50Spread Compensator Test 1000 s: (5.50) 1st version Remarks: Setting : 500 Speed rpm hPa : 170 Pressure : 11.00...11.10 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.70...10.80 2nd pressure hPa : 225 Rack travel in m: 12.10...12.40 3rd pressure hPa : 1000 Rack travel in m: 12.40...12.50 START CUT-OUT 1/min: 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm_: 600 Speed Del.quantity cm3/: 83.0...86.0 1000 s: (80.5...88.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -

Note remarks

: IHC 7,6 R25 : 06.09.90 : 17.05.90 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 403 446 213

Injection pump

Pump designation : PES6MW100/320RS1112

: 0 413 406 108 EP type number

Governor

Governor design. : RQV350...1300MW72-4 Governor no. : 0 420 083 170

Customer-spec, information Customer : NAVISTAR

Engine : DT-466

1st version kW : 154.5 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 2 417 413 037

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 016 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,5

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.00...4.10 Prestroke mm

: (3.95...4.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350
Rack travel in mm : 5.5...5.6
Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1460 1st speed

: 9.10...9.50 travel mm

rpm : 1350 2nd speed : 8.30...8.50

travel mm 3rd speed rom

: 550 : 3.10...3.70 : 350 : 1.30...1.70 travel mm

4th speed rpm

travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

: 900 Speed rpm

: 99.0...101.0 Del.quantity

1000 : (97.0...103.0)

: 3.5 Spread cm3

: (6.0) 1000

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testina:

1st rack travel in: 9.50

rpm : 1365...1385 Speed

2nd rack travel in: 4.00

Speed rpm : 1470...1480 4th rack travel in: 1600

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 9...17

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 7.30

: 350 Speed rpm

Rack travel in mm: 5.5...5.6

CONSTANT REGULATION

rpm : 390...480 Speed

START CUT-OUT

1/min: 180 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 1300 Speed rpm

Del.quantity cm3/: 101.0...105.0

1000 s: (99.0...107.0)

cm3 : 5.0 Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

rpm : 1365...1385 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 140...180

1000 s: (137...183)

Rack travel in mm : 19.0...21.0

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.5...5.6

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.5 Spread

1000 s: (5.5)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

: MB 6,0 D 61 Test sheet : 16.08.90 Edition : 24.02.89 Replaces : ISO-4113 Test oil

: 0 403 446 215 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1131

: 0 413 406 123 EP type number

Governor

Governor design. : RQV300...1300MW50-5

: 0 420 083 187 Governer no.

Customer-spec. information

Customer : DB

: OM 366 LA Engine

: 146.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

: 1 680 715 015 Test Lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 12.00...12.10

Del.guantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.7...1.1 100 s: (0.4...1.3)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

: 9.50...9.90 travel mm

rpm : 1350 2nd speed

: 8.50...8.70 travel mm

rpm : 500 3rd speed

: 2.70...3.30 travel mm

rpm : 300 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -1 rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

: 89.0...91.0 1000 : (87.0...93.0) Del.quantity

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

Speed rpm : 500 Del.quantity cm3/ : 51.0...53.0 1000 s: (49.0...55.0) 1st version Control lever position degrees: 51...59 Testina: 1st rack travel in: 11.00 BREAKAWAY rpm : 1340...1350 Speed 2nd rack travel in: 4.00 1st version Speed rpm : 1440...1470 4th rack travel in: 1550 1mm rack travel less than rpm : 0.00...1.00full load rack tr: 11.00 Speed rpm : 1340...1350 Speed LOW IDLE 1 Control lever STARTING FUEL DELIVERY position degrees: 14...22 Setting point w/out bumper spring rpm : 300 : 100 Speed Speed rpm Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0) Rack travel in mm: 6.1 Testina: Speed : 100 LOW IDLE rpm Minimum rack trave: 7.80 : 300 Speed : 300 Speed rpm rpm Rack travel in mm : 6.00...6.20 Rack travel in mm : 6.00...6.20 Del.quantity cm3/ : 7.0...11.0 1000 s: (4.5...13.5) cm3 : 3.50 1000 s: (5.50) Aneroid/Altitude Spread Compensator Test 1st version Remarks: Setting : : 500 Speed rpm hPa : 300 Pressure Rack travel mm : 11.70...11.80 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.60...10.70 2nd pressure hPa : 230 Rack travel in m: 10.90...11.20 3rd pressure hPa : 1000 Rack travel in m: 12.00...12.10 START CUT-OUT 1/min : 200 (230) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/ : 74.0...77.0 1000 s: (71.5...79.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -

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BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6.0 D 59 Test sheet Edition : 16.08.90 : 07.02.89 Replaces Test oil : ISO-4113 : 0 403 446 219 Combination no. Injection pump Pump designation : PES6MW100/720RS1120 : 0 413 406 112 EP type number Governor Governor design. : RQV300...1300MW59-1 : 0 420 083 181 Governer no. Customer-spec. information Customer : MB-NFZ : OM366LA Engine 1st version kW : 141.7 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** : 172...175 pressure, bar : 1 680 750 015 Test lines Outside diameter x Wall thickness x Length mm : 6.00X1.50X600 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 E20

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing : 0.50 (0.75) Tolerance + - ° BASIC SETTING rpm: 1300 1st speed Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 8.6...8.8 100 s: (8.4...9.0) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1460 9.50...9.90 rpm : 1350 travel mm 2nd speed : 8.50...8.70 travel mm 3rd speed : 500 rpm : 2.70...3.30 travel mm rpm:3004th speed : 0.70...1.10 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1325 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300 Speed Aneroid pressure h: 1000 : 86.0...88.0 Del.quantity 1000 : (84.0...90.0)

: 3.50

: (6.00)

cm3 1000

Spread

RATED SPEED

1st version Control lever position degrees: 51..59 Testing: 1st rack travel in: 11.10 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1450...1480 Speed 4th rack travel in: 1530 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 14...22 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.1 Testina: rpm : 100 Speed Minimum rack trave: 7.60 Speed rpm : 300 Rack travel in mm : 6.00...6.20 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom Pressure hPa : 310 : 11.80...11.90 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 11.00...11.10 2nd pressure hPa : 280 Rack travel in m: 11.20...11.50 3rd pressure hPa : 1000 Rack travel in m: 12.10...12.20 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm: 750
Del.quantity cm3/: 75.5...78.5
1000 s: (73.0...81.0)

cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 47.0...49.0 1000 s: (45.0...51.0) **BREAKAWAY** 1st version

1mm rack travel less than

full load rack tr: 11.10 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0)

LOW IDLE

rpm : 300 Speed Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

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Note remarks

Test sheet : MB 6,0 D 64 : 16.08.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 221

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

Governor design. : RQV300...1200MW69-2

: 0 420 083 185 Governer no.

Customer-spec. information Customer : MB-NFZ

: 0M366A Engine

: 116.0 1st version kW Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 11.00...11.10

Del.guantity cm3/: 7.7...7.9

100 s: (7.5...8.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 7.7...7.9 Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5) cm3 : 0.3 Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1310 1st speed

: 9.20...9.80 travel mm 2nd speed rpm : 1250

: 8.40...8.60 travel mm

: 500 3rd speed rpm : 2.90...3.50 travel mm

: 300 4th speed rom

: 1.00...1.40 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1250

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1200

: 77.0...79.0 Del.quantity

1000 : (75.0...81.0)

: 3.50 cm3

: (6.00) 1000

RATED SPEED

Spread

1st version

Control lever position degrees: 50...58 Testing: 1st rack travel in: 10.00 Speed rpm: 1240...1250 2nd rack travel in: 4.00 Speed rpm : 1285...1315 4th rack travel in: 1400 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 7.8 Testing: rpm : 100 Speed Minimum rack trave: 9.50 Speed rpm: 300 Rack travel in mm : 7.70...7.90 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 11.00...11.10 2nd speed rpm : 750 Rack travel in m: 11.70...11.90 3rd speed rpm : 600 Rack travel in m: 12.00...12.20 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm: 750 Del.quantity_cm3/: 70.5...73.5 1000 s: (68.0...76.0) cm3 : 5.00Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00

rpm : 1240...1250

rpm : 100

Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.70...7.90
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

.

E23

Speed

Speed

STARTING FUEL DELIVERY

Note remarks

: MB 6,0 D 67 : 16.08.90 Test sheet Edition Replaces : 14.04.89 Test oil : ISO-4113

Combination no. : 0 403 446 223

Injection pump

Pump designation : PES6MW100/720RS1172

: 0 413 406 155 EP type number

Governor

Governor design. : RQV300...1300MW67-1

: 0 420 083 188 Governer no.

Customer-spec. information Customer : MB-NFZ

Engine : DM 366 LA

1st version kW : 177.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening 1

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 19.00...21.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 14.40...14.50

Del.guantity cm3/: 10.4...10.6

100 s: (10.2...10.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1460 1st speed

: 9.70...10.10 travel mm

: 1360 2nd speed rpm

: 8.30...8.50 travel mm

: 600 3rd speed rpm

: 3.50...4.10 travel mm : 300 4th speed

rpm : 1.20...1.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300Speed

Aneroid pressure h: 1000 Del.quantity

: 104.0...106.0 1000 : (102.0...108.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 66...74 Testing: 1st rack travel in: 13.40 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1430...1460 4th rack travel in: 1500 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 24...32 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.9 Testing: Speed : 100 rpm Minimum rack trave: 7.60 : 300 Speed rpm Rack travel in mm : 5.80...6.00 TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 14.40...14.50 rpm : 850 2nd speed Rack travel in m: 15.30...15.40 3rd speed rpm : 1100 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : Rack travel mm : 11.70...11.80 Measurement 1/min: 500 Speed 1st pressure hPa : 550 Rack travel in m: 12.70...12.80
2nd pressure hPa : 700
Rack travel in m: 14.00...14.20
3rd pressure hPa : 1000 Pack tra/el in m: 15.30...15.40 START CUT OUT 1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 Speed rpm : 850 Del.quantity cm3/: 107.0...110.0 1000 s: (104.5...112.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 42.0...44.0 1000 s: (40.0...46.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.40 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE Speed : 300 rpm Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50 1000 s: (5.00) Remarks:

Note remarks

: MB 6,0 D 70 Test sheet : 16.08.90 Edition

Replaces

: ISO-4113 Test oil

: 0 403 446 224 Combination no.

Injection bumb

Pump designation : PES6MW100/720RS1172

EP type number : 0 413 406 155

Governor

Governor design. : RQV300...1300MW67-2

: 0 420 083 189 Governer no.

Customer-spec. information Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 170.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 19.00...21.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 14601st speed

: 9.70...10.10 travel mm

rpm : 1360 2nd speed

: 8.30...8.50 travel mm

3rd speed : 600 rpm

: 3.50...4.10 : 300 travel mm

4th speed rpm

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

Aneroid pressure h: 1000

: 105.0...107.0 Del.quantity

1000 : (103.0...109.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

Spread

1st version Control lever position degrees: 60...68 Testina: 1st rack travel in: 13.70 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1445...1475 Speed 4th rack travel in: 1500 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.2 Testing: rpm : 100 Speed Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 6.10...6.30 Rack travel in mm : 2.00 : 415...475 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure : 11.90...12.00 Rack travel mm Measurement Speed $1/\min : 500$ 1st pressure hPa : 450 Rack travel in m: 12.60...12.70 2nd pressure hPa : 550 Rack travel in m: 13.50...13.80
3rd pressure hPa : 1000
Rack travel in m: 14.70...14.80 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

rpm : 750 Del.quantity cm3/: 92.0...95.0 1000 s: (89.5...97.5)

cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 42.0...44.0 1000 s: (40.0...46.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.70 rpm : 1340...1350 Speed STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

: 300 Speed rpm Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 1000 s: (5.00) Spread

Remarks:

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC 7,6 X Edition : 16.08.90 Replaces : ISO-4113 Test oil : 0 403 446 239 Combination no. Injection pump : PES6MW100/320RS1189 Pump designation : 0 413 406 177 EP type number Governor : RQV350...1200MW46-21 Governor design. : 0 420 083 201 Governer no. Cust. part no. : 1815503c91 Customer-spec. information Customer : NAVISTAR Engine : DTA-466 1st version kW : 186.0 : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 : 1 680 750 008 Test lines Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

Test pressure, bar: 30...32 Prestroke mm : 3.25...3.35 : (3.20...3.40) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 800 1st speed Rack travel in mm : 14.00...14.10 Del.quantity cm3/: 15.2...15.4 100 s: (15.0...15.6) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1350 1st speed travel mm : 8.30...8.50 2nd speed : 1460 rpm 9.10...9.50 travel mm rpm : 550 3rd speed : 3.10...3.70 travel mm : 350 4th speed rpm : 1.30...1.70 travel mm "JLL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 800 Speed Aneroid pressure h: 900 : 152.0...154.0 Del.quantity 1000 : (150.0...156.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED

per values

(A) Injection pump setting values

Set equal delivery quant.

Insp. values in parentheses

1st version Control lever

position degrees: 45...53

Testina:

1st rack travel in: 13.00

rpm : 1280...1300 Speed

2nd rack travel in: 4.00

: 1435...1445 Speed rpm

4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

Speed rpm : 350° Rack travel in mm: 5.4

Testina:

Speed : 100 rpm Minimum rack trave: 9.00 : 350 Speed rom

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rom hPa : Pressure

: 8.90...9.00 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : 250

Rack travel in m: 10.20...10.30 2nd pressure hPa : 550

Rack travel in m: 12.50...12.90

3rd pressure hPa : 900

Rack travel in m: 14.00...14.10

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm : 1200 Del.quantity cm3/: 143.0...147.0

1000 s: (141.0...149.0)

cm3 : 6.50 1000 s: (7.0) Spread

Aneroid pressure h: -: 500 Speed rpm

Del.quantity cm3/: 62.0...64.0

1000 s: (60.0...66.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1280...1300 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...170.0

1000 s: (127.0...173.0)

Rack travel in mm : 14.50...15.50

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: IHC #1815503C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

Note remarks

: IHC 7,6 W 1 Test sheet : 10.08.90 Edition

Replaces

Test oil : ISO-4113

: 0 403 446 241 Combination no.

Injection pump

Pump designation : PES6MW100/320RS1198

: 0 413 406 188 EP type number

Governor

Governor design.: RQV350...1200MW46-23

: 0 420 083 203 Governer no.

Cust. part no. : 1815518c91

Customer-spec. information Customer : NAVISTAR

: DT -466 Engine

: 157.0 1st version kW Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 Prestroke mm

: (3.20...3.40)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 12.00...12.10

Del.guantity cm3/: 13.0...13.2

100 s: (12.8...13.4)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1460 1st speed

: 9.10...9.50 travel mm

rpm : 1350 2nd speed

: 8.30...8.50 travel mm

rpm : 550 3rd speed

: 3.10...3.70 travel mm

rpm : 350 4th speed

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800 Aneroid pressure h: 900

: 130.0...132.0 Del.quantity

1000 : (128.0...134.0) cm3 : 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version Control Lever

position degrees: 52...60

Testing:

1st rack travel in: 11.00

rpm : 1270...1290 Speed

2nd rack travel in: 4.00 Speed rpm : 1405...1415

4th rack travel in: 1500

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 20...28

Setting point w/out bumper spring

: 350 rpm Rack travel in mm: 5.4

Testing:

Speed : 100 rom

Minimum rack trave: 9.00 rpm : 350 Speed

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : -Pressure

: 9.00...9.10 Rack travel mm

Measurement

Speed $1/\min : 500$

1st pressure hPa : 220

Rack travel in m: 9.70...9.80

2nd pressure hPa : 500

Rack travel in m: 11.30...11.70 3rd pressure hPa : 900

Rack travel in m: 12.00...12.10

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 1200 Speed

Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0) Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 74.0...76.0

1000 s: (72.0...78.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...170.0 1000 s: (127.0...173.0)

LOW IDLE

: 350 Speed rpm

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: IHC #1815518C91

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 : 3.25...3.35 Note remarks Prestroke mm : (3.20...3.40) Rack travel in mm : 9.00...12.00 : IHC 7.6 W 4 : 31.08.90 Test sheet : 1-5-3-6-2-4 Edition Firing order Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Combination no. : 0 403 446 242 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1198 : 0 413 406 188 EP type number Time to cyl. no. : 1 Governor Governor design. : RQV350...1200MW46-24 BASIC SETTING : 0 420 083 204 Governer no. rpm: 800 1st speed : 1815515C91 Cust. part no. Rack travel in mm : 12.00...12.10 Customer-spec. information Del.quantity cm3/: 13.0...13.2 : NAVISTAR Customer 100 s: (12.8...13.4) : DT 466 Engine cm3 : 0.3: 157.0 Spread 1st version kW Rated speed : 2400 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0 Test oil inlet temp. °C : 38...42 100 s: (1.3...2.2) Overflow valve cm3 : 0.3Spread : 2 417 413 038 100 s: (0.5) (B) Setting of injection pump Inlet press., bar: 2.80 with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly rpm : 1450 1st speed : 9.80...10.20 travel mm Opening rpm : 1250 : 207...210 2nd speed pressure, bar : 7.90...8.10 travel mm : 550 3rd speed Orifice plate rpm : 3.10...3.70 : 350 diameter mm : 0,6 travel mm 4th speed rpm : 1.30...1.70 travel mm : 1 680 750 008 Test lines FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version : 6.00X2.00X600 rpm : 800 x Length mm Speed Aneroid pressure h: 900 1000 : (128.0...132.0 1000 : (128.0...134.0) Del.quantity (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. cm3 : 3.50 Spread 1000 : (6.00) per values BEGINNING OF DELIVERY RATED SPEED

FO4

1st version Control Lever

position degrees: 52...60

Testina:

1st rack travel in: 11.00

Speed rpm : 1270...1290 2nd rack travel in: 4.00

Speed rpm : 1405...1415

4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 20...28 Setting point w/out bumper spring

: 350 rpm Speed Rack travel in mm: 5.4

Testing:

Speed : 100 rpm Minimum rack trave: 9.00 rpm Speed

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting Speed

: 500 rom hPa : -Pressure

: 9.70...9.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 215

Rack travel in m: 10.30...10.40

2nd pressure hPa : 425

Rack travel in m: 11.40...11.80

3rd pressure hPa : 900

Rack travel in m: 12.00...12.10

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rom : 1200 Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 86.0...88.0 1000 s: (84.0...90.0)

RACK STOP ADJUSTMENT

Speed : 100 rpm

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 130.0...170.0

1000 s: (125.0...175.0)

Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

: IHC #1815515C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 : 3.25...3.35 : (3.20...3.40) Note remarks Prestroke mm Rack travel in mm : 9.00...12.00 Test sheet : IHC 7,6 W : 1-5-3-6-2-4 : 16.08.90 Firing order Edition Replaces Test oil : ISO-4113 : 0 403 446 243 : 0-60-120-180-240-300 Combination no. Phasina Phasing Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1198 EP type number : 0 413 406 188 BASIC SETTING Governor Governor design. : RQV350...1200MW46-25 rpm: 800 1st speed : 0 420 083 205 Governer no. Rack travel in mm : 11.50...11.60 Cust. part no. : 1815519091 Del.guantity cm3/: 12.2...12.4 Customer-spec. information 100 s: (12.0...12.6) Customer : NAVISTAR : DTA-466 cm3 : 0.3Engine Spread : 145.0 100 s: (0.6) 1st version kW Rated speed : 2400 rpm : 350.0 2nd speed Rack travel in mm: 5.3...5.5 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. °C : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 038 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL rpm : 1450 Test nozzle holder 1st speed assembly : 1 688 901 101 travel mm : 9.80...10.20 rpm : 1250 2nd speed 7.90...8.10 travel mm Opening rpm : 550 : 207...210 3rd speed pressure, bar : 3.10...3.70 travel mm 4th speed rpm : 350 Orifice plate : 0,6 : 1.30...1.70 diameter mm travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version Outside diameter Speed rpm : 800 x Wall thickness Aneroid pressure h: 900 x Length mm : 6.00x2.00x600 Del.quantity : 122.0...124.0 1000 : (120.0...126.0) : 3.50 (A) Injection pump setting values Spread cm3 1000 : (6.00) Insp. values in parentheses Set equal delivery quant. RATED SPEED per values _ 1st version BEGINNING OF DELIVERY

F06

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 10.50

rpm : 1265...1285 Speed

2nd rack travel in: 4.00

Speed rpm : 1385...1395 4th rack travel in: 1550 Speed

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 16...24

Setting point wout bumper spring

Speed rom Rack travel in mm: 5.4

Testing:

: 100 Speed man

Minimum rack trave: 9.00

: 350 Speed rpm

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 800 Speed rpm hPa : 210 Pressure

: 9.40...9.50 Rack travel mm

Measurement

1/min: 800 Speed

1st pressure hPa : -

Rack travel in m: 8.70...8.80

2nd pressure hPa : 460 Rack travel in m: 10.70...11.00

3rd pressure hPa : 900

Rack travel in m: 11.50...11.60

START CUT-OUT

Speed 1/min: 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 1200 Speed rpm

Del.quantity cm3/: 117.0...121.0 1000 s: (115.0...123.0)

cm3 : 6.50Spread

1000 s: (7.0)

Aneroid pressure h: -

rpm : 800 Speed

Del.quantity cm3/: 75.0...77.0 1000 s: (73.0...79.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

rpm : 1265...1285 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...170.0

1000 s; (127.0...173.0)

Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.30...5.50 Del.quantity cm3/ : 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50

1000 s: (5.50)

Remarks:

Spread

: IHC #1815519C91

In unlatched condition, do not operate greater than n = 500 1/min

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7.6 X 2 : 31.08.90 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 446 244 Injection pump Pump designation : PES6MW100/320RS1189 EP type number : 0 413 406 177 Governor Governor design. : RQV350...1200MW46-26 : 0 420 083 206 Governer no. : 1815520c91 Cust. part no. Customer-spec. information Customer : NAVISTAR : DTA-466 Engine 1st version kW : 201.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly **Opening** : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _

Test pressure, bar: 30...32 : 3.25...3.35 Prestroke mm : (3.20...3.40) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. BASIC SETTING rpm: 1200 1st speed Rack travel in mm : 14.10...14.20 Del.quantity cm3/: 14.6...14.8 100 s: (14.4...15.0) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1350 1st speed : 8.30...8.50 travel mm 2nd speed rpm : 1460 : 9.10...9.50 travel mm : 550 3rd speed rom : 3.10...3.70 travel mm : 350 4th speed rpm travel mm : 1.30...1.70 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1200 Speed Aneroid pressure h: 1200 Del.quantity : 146.5...148.5 1000 : (144.5...150.5) : 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 41...49 Testina: 1st rack travel in: 13.10 Speed rpm: 1270...1290 2nd rack travel in: 4.00 Speed rpm : 1430...1440 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 8...16 Setting point w/out bumper spring Speed rom Rack travel in mm: 5.4 Testing: Speed : 100 rpm Minimum rack trave: 9.00 rpm : 350 Speed Rack travel in mm : 5.30...5.50 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL Dimension a mm : 0.40 Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 14.10...14.20 rpm : 800 2nd speed Rack travel in m: 14.50...14.60 rpm : 1050 3rd speed Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom Pressure hPa : -: 9.00...9.10 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 275 Rack travel in m: 10.40...10.50 2nd pressure hPa : 585 Rack travel in m: 12.90...13.20 3rd pressure hPa : 1200 Rack travel in m: 14.50...14.60

Speed 1/min : 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 800 Speed rpm Del.quantity cm3/: 160.0...164.0 1000 s: (158.0...166.0) cm3 : 6.50 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 61.5...63.5 1000 s: (59.5...65.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.10 rpm : 1270...1290 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 150.0...190.0 1000 s: (147.0...193.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: : IHC #1815520C91 In unlatched condition, do not operate greater than n = 500 1/minSet shutoff stop 1.5...2.0 mm before shutoff.

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 : 3.25...3.35 : (3.20...3.40) Note remarks Prestroke mm Rack travel in mm : 9.00...12.00 : IHC 7,7 A Test sheet : 1-5-3-6-2-4 Edition : 10.08.90 Firing order Replaces : ISO-4113 Test oil Combination no. : 0 403 446 245 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1204 : 0 413 406 192 Time to cyl. no. : 1 EP type number Governor Governor design. : RQV350...1200MW46-27 BASIC SETTING : 0 420 083 207 Governer no. 1st speed rpm: 800 Cust. part no. : 1815516091 Rack travel in mm : 10.80...10.90 Customer-spec. information Del.quantity cm3/: 11.2...11.4 Customer : NAVISTAR : DTA-360 100 s: (11.0...11.6) Engine : 138.0 1st version kW Spread cm3 : 0.3: 2400 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.02nd speed Rack travel in mm: 5.3...5.5 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Overflow valve Spread : 2 417 413 038 100 s: (0.5) (B) Setting of injection pump Inlet press., bar : 2.80 with governor Test nozzle holder assembly : 1 688 901 101 GUIDE SLEEVE TRAVEL rpm : 1460 1st speed : 9.10...9.50 rpm : 1350 Openina travel mm : 207...210 2nd speed pressure, bar : 8.30...8.50 travel mm rpm : 550 Orifice plate 3rd speed : 3.10...3.70 rpm : 350 : 0,6 travel mm diameter mm 4th speed travel mm : 1.30...1.70 Test lines : 1 680 750 008 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version x Length mm : 6.00x2.00x600 Speed rpm : 800 Aneroid pressure h: 900 : 112.0...114.0 (A) Injection pump setting values Del.quantity 1000 : (110.0...116.0) Insp. values in parentheses : 3.50 Set equal delivery quant. Spread cm3 1000 : (6.00) per values ___

RATED SPEED

BEGINNING OF DELIVERY

1st version Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.80

rpm : 1415...1435 Speed

2nd rack travel in: 4.00

rom : 1505...1515 Speed

4th rack travel in: 1600

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

: 350 rpm Rack travel in mm: 5.4

Testina:

: 100 Speed rpm Minimum rack trave: 9.00 rpm : 350

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rom Pressure hPa : -

Rack travel mm : 8.80...8.90

Measurement

1/min: 500 Speed

1st pressure hPa : 220

Rack travel in m: 9.40...9.50

2nd pressure hPa : 400

Rack travel in m: 10.10...10.50

3rd pressure hPa : 900

Rack travel in m: 10.80...10.90

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm : 1350 Del.guantity cm3/: 109.0...111.0

1000 s: (107.0...113.0)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 71.0...73.0 1000 s: (69.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

rpm : 1415...1435 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 130.0...170.0 1000 s: (127.0...173.0)

LOW IDLE

Speed : 350 rom

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50 1000 s: (5.50)

Remarks:

: IHC #1815516C91

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

Test sheet : MB 6,0 D 83 : 16.08.90 Edition : 17.05.90 Replaces : ISO-4113 Test oil

: 0 403 446 246 Combination no.

Injection pump

Pump designation: PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

Governor design.: RQV300...1300MW50-6

: 0 420 083 209 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M366A Engine

: 125.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 essembly

Ocenina

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85) Rack travel in mm : 9.00...12.00

F12

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 7.7...7.9

100 s: (7.5...8.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 8.0...8.2 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1430 : 9.30...9.70 1st speed

travel mm : 1340

2nd speed rpm

: 8.50...8.70 travel mm

: 500 3rd speed rom

travel mm : 2.70...3.30

: 300 4th speed rpm

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

Del.quantity : //.u.../1000 : (75.0...81.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version START CUT-OUT Control lever position degrees: 50...58 1/min: 230 (250) Speed Setting point: FUEL DELIVERY CHARACTERISTICS : 1300 Speed rpm Rack travel in mm: 16.5 Testing: 1st version 1st rack travel in: 10.00 Aneroid pressure h: 1000 Speed rpm: 1340...1350 2nd rack travel in: 4.00 Speed rpm: 800 Del.quantity cm3/: 76.0...78.0 Speed rpm : 1425...1455 1000 s: (74.0...80.0) 4th rack travel in: 1550 Spread cm3 : 5.00 1000 s: (7.0) Speed rpm : 0.00...1.00Aneroid pressure h: 1000 rpm : 585 LOW IDLE 1 Speed Del.quantity cm3/: 68.5...71.5 1000 s: (66.0...74.0) Control lever position degrees: 20...28 Setting point w/out bumper spring Aneroid pressure h: rpm : 500 rpm : 300 Speed Rack travel in mm: 8.1 Del.quantity cm3/: 39.0...41.0 1000 s: (37.0...43.0) Testina: rpm : 100 Speed Minimum rack trave: 9.20 **BREAKAWAY** : 300 rpm Rack travel in mm : 8.00...8.20 1st version 1mm rack travel less than TORQUE CONTROL full load rack tr: 10.00 Dimension a mm : 1.20 rpm : 1340...1350 Torque control curve - 1st version Speed st speed rpm : 1300 Rack travel in m: 10.90...11.00 1st speed STARTING FUEL DELIVERY rpm : 800 2nd speed Rack travel in m: 11.80...12.00 rpm : 585 : 100 3rd speed Speed rpm Del.quantity cm3/: 78.0...88.0 Rack travel in m: 12.00...12.20 rpm : 1100 1000 s: (75.0...91.0) 4th speed Rack travel in m: 11.10...11.30 LOW IDLE Aneroid/Altitude Speed rpm : 300 Rack travel in mm : 8.00...8.20 Compensator Test Del.quantity cm3/: 9.0...13.0 1st version 1000 s: (6.5...15.5) cm3 : 3.50 Setting Spread 1000 s: (5.50) Speed : 500 man Pressure hPa : -: 10.50...10.60 Rack travel mm Remarks: Measurement 1/min : 500 Speed 1st pressure hPa : 180 Rack travel in m: 10.90...11.00 2nd pressure hPa : 290 Rack travel in m: 11.70...12.00 3rd pressure hPa : 1000

Rack travel in m: 12.00...12.20

Note remarks

Test sheet : RVI 6,2 F Edition : 29.06.90

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 446 251

Injection pump

Pump designation : PES6MW100/320RS1202

: 0 413 406 187 EP type number

Governor

Governor design. : RQ750MW112 : 0 420 082 042 Governer no.

Customer-spec. information : RVI Customer

Engine : LDR 10

1st version kW : 100.0 : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 Prestroke mm

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 13.3...13.5

100 s: (13.1...13.7)

Spread cm3 : 0.3

100 s: (0.6)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 133.5...135.5 Del.quantity

1000 : (131.5...137.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 29...35

Testing:

1st rack travel in: 13.50

rpm : 750...755 Speed

2nd rack travel in: 4.00

rpm : 795...805 Speed

4th rack travel in: 825

rpm : 0.00...1.00Speed

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50

rpm : 750...755 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 100.0...110.0

1000 s: (97.0...113.0)

F14

Rack travel in mm : 19.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Prestroke mm : 3.25...3.35 : (3.20...3.40) Rack travel in mm : 9.00...12.00 Note remarks : IHC 7,6 X 3 Test sheet : 16.08.90 : 1-5-3-6-2-4 Edition Firing order Replaces Test oil : ISO-4113 Combination no. : 0 403 446 254 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° Injection pump : 0.50 (0.75) Pump designation : PES6MW100/320RS1189 EP type number : 0 413 406 177 Time to cyl. no. : 1 Governor Governor design. : RQV350...1200MW46-29 BASIC SETTING : 0 420 083 217 Governer no. 1st speed rpm: 800 Cust. part no. : 1816730091 Rack travel in mm : 14.00...14.10 Customer-spec. information : NAVISTAR Del.quantity cm3/: 15.2...15.4 Customer 100 s: (15.0...15.6) : DTA-466 Engine 1st version kW : 186.0 Spread cm3 : 0.3Rated speed : 2400 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0 Test oil inlet temp. °C : 38...42 100 s: (1.3...2.2) Overflow valve Spread cm3 : 0.3: 2 417 413 038 100 s: (0.5) (B) Setting of injection pump Inlet press., bar: 2.80 with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly rpm : 13501st speed : 8.30...8.50 Opening travel mm rpm : 1460 : 207...210 2nd speed pressure, bar : 9.10...9.50 travel mm : 550 : 3.10...3.70 3rd speed Orifice plate rpm : 0,6 diameter mm travel mm : 350 : 1.30...1.70 4th speed rpm travel mm : 1 680 750 008 Test lines FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version rpm : 800 : 6.00x2.00x600 Speed x Length mm Aneroid pressure h: 1200 Del.quantity : 152.0...154.0 1000 : (150.0...156.0) (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. cm3 : 3.50 Spread per values 1000 : (6.00)

RATED SPEED

BEGINNING OF DELIVERY

1st version Control lever position degrees: 54...62 Testina: 1st rack travel in: 13.00 rpm : 1280...1300 Speed 2nd rack travel in: 4.00 rpm : 1435...1445 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm Rack travel in mm: 5.4 Testing: Speed rpm Speed

Minimum rack trave: 9.00 rpm : 350 Rack travel in mm : 5.30...5.50

CONSTANT REGULATION rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version Setting Speed rpm : 500 Pressure hPa : -: 9.80...9.90 Rack travel mm

Measurement 1/min: 500 Speed

1st pressure hPa : 290 Rack travel in m: 10.80...10.90 2nd pressure hPa : 750

Rack travel in m: 12.80...13.20

3rd pressure hPa : 1200 Rack travel in m: 14.00...14.10

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 rpm : 1200 Speed

Del.quantity cm3/: 140.0...144.0 1000 s: (138.0...146.0) cm3 : 6.50Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm

Del.quantity cm3/: 73.5...75.5 1000 s: (71.5...75.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00 rpm : 1280...1300 Speed

STARTING FUEL DELIVERY

Speed rpm Del.quantity cm3/: 130.0...170.0 1000 s: (127.0...173.0) Rack travel in mm : 14.50...15.50

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

: IHC #1816730C91 In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

Note remarks

Test sheet : IHC 7,6 X 1

: 16.08.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 255

Injection pump

Pump designation : PES6MW100/320RS1189

EP type number : 0 413 406 177

Governor

Governor design. : RQV350...1200MW46-30

: 0 420 083 218 Governer no.

: 1816731c91 Cust. part no.

Customer-spec. information Customer : NAVISTAR

: DTA-466 Engine

1st version kW : 201.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 Prestroke mm

: (3.20...3.40)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 14.6...14.8

100 s: (14.4...15.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed

Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 8.30...8.50 travel mm

rpm : 1460 2nd speed

: 9.10...9.50 travel mm

rpm : 550 3rd speed

: 3.10...3.70 travel mm

: 350 4th speed rom

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200 Aneroid pressure h: 1200

Del.quantity : 146.5...148.5 1000 : (144.5...150.5) Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 41...49 Testing: 1st rack travel in: 13.10 Speed rpm : 1270...1290 2nd rack travel in: 4.00 rpm : 1430...1440 Speed 4th rack travel in: 1550 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 8...16 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 5.4 Testina: Speed rpm : 100 Minimum rack trave: 9.00 rpm : 350 Speed Rack travel in mm : 5.30...5.50 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL Dimension a mm : 0.40 Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 14.10...14.20 : 800 2nd speed rpm Rack travel in m: 14.50...14.60 rpm : 1050 3rd speed Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure : 9.80...9.90 Rack travel mm Measurement Speed 1/min: 500 1st pressure hPa : 260 Rack travel in m: 11.00...11.10 2nd pressure hPa : 650 Rack travel in m: 13.20...13.50 3rd pressure hPa : 1200 Rack travel in m: 14.50...14.60 START CUT-OUT

1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 800 Speed Del.guantity cm3/: 160.0...164.0 1000 s: (158.0...166.0) cm3 : 6.50 Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 83.5...85.5 1000 s: (81.5...87.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.10 rpm : 1270...1290 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 150.0...190.0 1000 s: (147.0...193.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

: IHC #1816731C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

Note remarks

Test sheet : MB 6,9 D 89 : 16.08.90 Edition Replaces : 01.06.90 : ISO-4113 Test oil

Combination no. : 0 403 446 257

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

Governor design.: RQV300...1300MW50-7

Governer no. : 0 420 083 221

Customer-spec. information Customer : MB-NFZ

: 0M366A Engine

: 125.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening 1

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 7.2...7.4

100 s: (7.0...7.5)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.8...7.9 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 8.50...8.70 travel mm rpm : 1450 2nd speed

: 9.50...9.90 travel mm

3rd speed : 500 rom travel mm

2.70...3.30

: 300 4th speed rpm

travel mm : 1.20...1.70

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 900

: 72.0...74.0 Del.quantity

1000 : (70.0...76.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

F20

1st version Control lever position degrees: 52...60 Testing: 1st rack travel in: 9.90 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1425...1455 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.8 Testing: : 100 Speed rom Minimum rack trave: 9.30 : 300 rpm Rack travel in mm : 7.80...7.90 CONSTANT REGULATION Speed rpm : 330...500 TORQUE CONTROL : 1.00 Dimension a mm Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 10.90...11.00 rpm : 800 2nd speed Rack travel in m: 11.60...11.80 3rd speed rpm : 585 Rack travel in m: 11.80...12.00 Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rpm Rack travel mm : 8.50...8.60 Measurement $1/\min : 500$ Speed 1st pressure hPa : 300
Rack travel in m: 10.00...10.10
2nd pressure hPa : 500
Rack travel in m: 11.20...11.50
3rd pressure hPa : 900 Rack travel in m: 11.80...12.00 START CUT-OUT 1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed rpm : 800 Del.quantity cm3/: 71.0...73.0 1000 s: (69.0...75.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: 900 : 585 Speed mar Del.quantity cm3/: 65.0...68.0 1000 s: (62.5...70.5) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/ : 20.0...22.0
1000 s: (18.0...24.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm : 19.00...21.00 LOW IDLE

Speed rpm : 300 Rack travel in mm : 7.80...7.90 Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

F21

Note remarks

Test sheet : MB 6,0 D 58
Edition : 16.08.90
Replaces : 29.06.90
Test cil : ISO-4113

Combination no. : 0 403 446 258

Injection pump

Pump designation : PES6MW100/720RS1129

EP type number : 0 413 406 121

Governor

Governor design. : RQV300...1300MW50-8

Governer no. : 0 420 083 222

Customer—spec. information Customer : MB—NFZ

Engine : OM 366 LA

1st version kW : 149.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

Spread cm3:0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.5...5.6 Del.quantity cm3/: 0.9...1.1

100 s: (0.6...1.4)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.40...10.00 nd speed rpm : 1350

2nd speed rpm : 1350 travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm: 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1300 Aneroid pressure h: 1000

Del.quantity : 101.0...103.0 1000 : (99.0...105.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control Lever position degrees: 116...124 Testing: 1st rack travel in: 10.40 Speed rpm: 1340...1350 2nd rack travel in: 4.00 rpm : 1440...1470 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 82...90 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.5 Testing: : 100 Speed rom Minimum rack trave: 7.50 : 300 rpm Rack travel in mm : 5.50...5.60 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 CONSTANT REGULATION rpm : 320...530 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : 300 Rack travel mm : 8.30...8.50 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 7.40...7.50 2nd pressure hPa : 450 Rack travel in m: 10.10...10.30 3rd pressure hPa : 1000 Rack travel in m: 11.40...11.50 START CUT-OUT 1/min: 220 (230) Speed FUEL DELIVERY CHARACTERISTICS

Speed : 600 rom Del.quantity cm3/: 85.5...88.5 1000 s: (83.0...91.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 27.0...29.0 1000 s: (25.0...31.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed : 100 rom Del.quantity cm3/: 88.0...98.0 1000 s: (85.0...101.0) LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.50...5.60 Del.quantity cm3/ : 9.0...11.0 1000 s: (6.0...14.0)

Spread cm3 : 3.50 1000 s: (5.00)

Remarks:

F23

1st version

Aneroid pressure h: 1000

Note remarks

Test sheet : MB 6,0 D 65 : 31.08.90 Edition : 29.06.90 Replaces Test oil : ISO-4113

: 0 403 446 259 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1131-

EP type number : 0 413 406 165

Governor

Governor design. : RQV300...1300MW68-2

: 0 420 083 224 Governer no.

Customer-spec. information Customer : MB-NF7

: 0M366LA Engine

: 177.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 11.4...11.6

100 s: (11.2...11.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed 9.40...9.80 travel mm

1350 2nd speed rpm

: 8.40...8.60 travel mm

3rd speed : 600 rpm

: 3.90...4.50 travel mm

: 300 4th speed rpm

: 0.80...1.20 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

: 114.0...116.0 Del.quantity

1000 : (112.0...118.0) cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 116...124 Testing: 1st rack travel in: 13.40 Speed rpm: 1340...1350
2nd rack travel in: 4.00
Speed rpm: 1480...1510
4th rack travel in: 1600 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 78...86 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.4 Testing: Speed rom : 100Minimum rack trave: 9.00 rpm : 300 Speed Rack travel in mm : 6.30...6.50 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : Pressure : 10.20...10.30 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 200 Rack travel in m: 11.50...11.70 2nd pressure hPa : 400 Rack travel in m: 13.30...13.50 3rd pressure hPa : 1000 Rack travel in m: 14.40...14.50 START CUT-OUT 1/min: 180 (200) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 750
Del.quantity cm3/ : 106.5...109.5
1000 s: (104.0...112.0)
Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: Speed rpm : 500
Del.quantity cm3/ : 35.0...37.0
1000 s: (33.0...39.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.40
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Note remarks

Test sheet : MB 6,0 D 35 Edition : 16.08.90 Replaces : 06.07.90 Test oil : ISO-4113

Combination no. : 0 403 446 260

Injection pump

Pump designation : PES6MW100/720RS1120

EP type number : 0 413 406 112

Governor

Governor design. : RQV300...1300MW50-9

Governer no. : 0 420 083 223

Customer—spec. information Customer : MB-NFZ

Engine : OM366LA

1st version kW : 149.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 10.8...11.0

100 s: (10.6...11.2)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 6.4...6.6 Del.quantity cm3/ : 0.9...1.3 100 s: (0.7...1.5)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.40...10.00

2nd speed rpm: 1350

travel mm : 8.50...8.70

3rd speed rpm: 450

travel mm : 2.40...3.00

4th speed rpm: 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1000

Del.quantity : 108.0...110.0 1000 : (106.0...112.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

WILL OF ELL

1st version Control lever position degrees: 111...119 Testina: 1st rack travel in: 12.90 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1460...1490 Speed 4th rack travel in: 1530 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 76...84 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 6.5 Testina: Speed rpm : 100 Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 6.40...6.60 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Rack travel mm : 8,40,...8,50 Measurement 1/min: 500 Speed 1st pressure hPa : 280 Rack travel in m: 9.40...9.60 2nd pressure hPa : 600 Rack travel in m: 12.50...12.70 3rd pressure hPa : 1000 Rack trave! in m: 13.90...14.00 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS

Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 26.0...28.0 1000 s: (24.0...30.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.90 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0)

1000 s: (87.0...103.0 LOW IDLE Speed rpm : 300

Rack travel in mm : 6.40...6.60 Del.quantity cm3/ : 9.0...13.0 1000 s: (7.0...15.0)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

F27

Speed

1st version

Aneroid pressure h: 1000

rpm

Del.quantity cm3/: 98.0...102.0 1000 s: (96.0...104.0)

: 750

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Prestroke mm : 3.25...3.35 : (3.20...3.40) Rack travel in mm : 9.00...12.00 Note remarks Test sheet : IHC 7,7 A 1 Edition : 10.08.90 Firing order : 1-5-3-6-2-4 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 261 : 0-60-120-180-240-300 Phasing Phasing Injection pump Tolerance + - ° : 0.50 (0.75) Pump designation : PES6MW100/320RS1204 EP type number : 0 413 406 192 Time to cyl. no. : 1 Governor : RQV350...1200MW46-27 Governor design. BASIC SETTING Governer no. : 0 420 083 207 1st speed rpm : 800 : 1815516C91 Cust. part no. Rack travel in mm : 11.40...11.50 Customer-spec. information Del.quantity cm3/: 12.1...12.3 Customer : NAVISTAR 100 s: (11.9...12.5) : DTA-360 Engine 1st version kW : 138.0 Spread cm3 : 0.3Rated speed : 2400 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm: 5.3...5.5 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Overflow valve cm3 : 0.3Spread : 2 417 413 038 100 s: (0.5) Inlet press., bar: 2.80 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly rpm : 1460 1st speed : 9.10...9.50 travel mm Opening 1 4 1 rpm : 1350 : 207...210 2nd speed pressure, bar : 8.30...8.50 travel mm rpm : 550 Orifice plate 3rd speed : 3.10...3.70 diameter mm : 0,6 travel mm : 350 4th speed rpm : 1.30...1.70 travel mm : 1 680 750 008 Test lines FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version : 6.00X2.00X600 Speed rpm : 800 x Length mm Aneroid pressure h: 900 : 121.0...123.0 (A) Injection pump setting values Del.quantity 1000 : (119.0...125.0) Insp. values in parentheses Set equal delivery quant. Spread cm3 : 3.50 1000 per values : (6.00)

RATED SPEED

BEGINNING OF DELIVERY

1st version Control Lever

position degrees: 43...51

Testina:

1st rack travel in: 9.80

rpm : 1415...1435 Speed

2nd rack travel in: 4.00

rpm : 1505...1515 Speed

4th rack travel in: 1600

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

: 350 Speed rpm Rack travel in mm: 5.4

Testing:

: 100 Speed rpm Minimum rack trave: 9.00 rpm : 350 Speed

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 800 1st speed

Rack travel in m: 11.40...11.50

: 1350 rpm 2nd speed

Rack travel in m: 10.70...10.80

rpm : 1100 3rd speed

Rack travel in m: 10.90...11.20

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed man hPa : -Pressure

: 8.80...8.90 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 220

Rack travel in m: 9.40...9.50

2nd pressure hPa : 500

Rack travel in m: 10.60...11.00

3rd pressure hPa : 900

Rack travel in m: 11.40...11.50

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 1350 Del.quantity cm3/ : 109.0...111.0 1000 s: (107.0...113.0)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed rpm

Del.quantity cm3/: 71.0...73.0 1000 s: (69.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

rpm : 1415...1435 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 130.0...170.0 1000 s: (127.0...173.0)

LOW IDLE

Speed rpm

Rack travel in mm : 5.30...5.50

Del.guantity cm3/: 16.0...20.0

1000 s: (13.5...22.5) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: IHC #1815516C91

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks Prestroke mm : 3.25...3.35 : (3.20...3.40)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 : IHC 7,6 W 2 Test sheet : 16.08.90 Edition Replaces : ISO-4113 Test oil : 0 403 446 262 : 0-60-120-180-240-300 Combination no. Phasing Phasing Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation: PES6MW100/320RS1198 EP type number : 0 413 406 188 BASIC SETTING Governor Governor design. : RQV350...1200MW46-33 rpm: 800 1st speed : 0 420 083 226 Governer no. Rack travel in mm : 12.10...12.20 : 1817194091 Cust. part no. Del.quantity cm3/: 13.1...13.3 Customer—spec. information 100 s: (12.9...13.5) : NAVISTAR Customer cm3 : 0.3: DTA-466 Spread Engine 100 s: (0.6) 1st version kW : 172.0 : 2400 Rated speed rpm : 350.0 2nd speed Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0 TEST BENCH REQUIREMENTS Test oil 100 s: (1.3...2.2) cm3 : 0.3inlet temp. °C : 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 038 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL rpm : 1350 Test nozzle holder 1st speed : 1 688 901 101 : 8.30...8.50 assembly travel mm rpm : 1460 2nd speed : 9.10...9.50 **Opening** travel mm rpm : 550 : 207...210 3rd speed pressure, bar : 3,10...3.70 travel mm : 350 : 1.30...1.70 Orifice plate 4th speed rpm diameter mm : 0,6 travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version rpm : 800 Outside diameter Speed x Wall thickness Aneroid pressure h: 900 : 131.0...133.0 : 6.00X2.00X600 Del.quantity x Length mm 1000 : (129.0...135.0) : 3.50 (A) Injection pump setting values cm3 Spread 1000 : (6.00) Insp. values in parentheses Set equal delivery quant.

RATED SPEED

1st version

per values

BEGINNING OF DELIVERY

Control Lever position degrees: 98...106 Testina: 1st rack travel in: 11.10 Speed rpm : 1270...1290 2nd rack travel in: 4.00 rpm : 1405...1415 Speed 4th rack travel in: 1500 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.4 Testina: Speed rpm Minimum rack trave: 9.00 : 350 Speed rpm Rack travel in mm : 5.30...5.50 CONSTANT REGULATION rpm : 300...450 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : Pressure : 9.00...9.10 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 200 Rack travel in m: 9.60...9.70 2nd pressure hPa : 575 Rack travel in m: 11.30...11.70 3rd pressure hPa : 900 Rack travel in m: 12.10...12.20 START CUT-OUT 1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 rpm : 1200 Speed Del.quantity cm3/: 128.5...132.5 1000 s: (126.5...134.5)

Spread cm3 : 6.501000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 72.0...74.0 1000 s: (70.0...76.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.10 rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 130.0...170.0 1000 s: (127.0...173.0) Rack travel in mm : 13.00...14.00

LOW IDLE

: 350 Speed rpm Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

: IHC #1817194C91 Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter. In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7,6 W 3 : 16.08.90 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 446 263 Injection pump Pump designation : PES6MW100/320RS1198 : 0 413 406 188 EP type number Governor Governor design. : RQV350...1200Mv46-34 : 0 420 083 227 Governer no. : 1817193091 Cust. part no. Customer—spec. information : NAVISTAR Customer : DTA-466 Engine 1st version kW : 172.0 : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly **Opening** : 207...210 pressure, bar Orifice plate diameter mm : 0,6 : 1 680 750 008 Test lines Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Test pressure, bar: 30...32 : 3.25...3.35 Prestroke mm : (3.20...3.40) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm: 800 1st speed Rack travel in mm : 12.10...12.20 Del.guantity cm3/: 13.1...13.3 100 s: (12.9...13.5) cm3 : 0.3Spread *00 s: (0.6) rpm : 350.02nd speed Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1350 1st speed : 8.30...8.50 travel mm rpm : 1460 2nd speed travel mm : 9.10...9.50 : 550 : 3.10...3.70 : 350 3rd speed rpm travel mm 4th speed rpm : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 800 Aneroid pressure h: 900 : 131.0...133.0 Del.quantity 1000 : (129.0...135.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version

per values

BEGINNING OF DELIVERY

Control Lever

position degrees: 98...106

Testing:

1st rack travel in: 11.10

rpm : 1270...1290 Speed

2nd rack travel in: 4.00

rpm : 1405...1415 Speed

4th rack travel in: 1500

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control Lever

position degrees: 66...74

Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 5.4

Testing:

Speed : 100 mqn

Minimum rack trave: 9.00

: 350 Speed rom Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed MOM : 500

Pressure hPa :

: 9.40...9.50 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 250

Rack travel in m: 10.00...10.10

2nd pressure hPa : 575 Rack travel in m: 11.20...11.60

3rd pressure hPa : 900

Rack travel in m: 12.10...12.20

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 1200 Speed magn

Del.quantity cm3/: 128.5...132.5 1000 s: (126.5...134.5)

Spread cm3 : 6.50

1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed Del.quantity cm3/: 76.0...78.0 1000 s: (74.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 130.0...170.0

1000 s: (127.0...173.0)

Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.30...5.50

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: IHC #1817193C91

Only perform pump setting with original

overflow valve without IH hose and

restrictor 1.2 mm diameter.

In unlatched condition, do not

operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 7,2 W : 20.07.90 Edition : 06.07.90 Replaces : ISO-4113 Test oil Combination no. : 0 403 456 109 Injection pump Pump designation : PES6MW100/321RS1200 EP type number : 0 413 406 189 Governor Governor design. : RQV250...1200MW83-2 : 0 420 083 216 Governer no. : 3-7036 Cust. part no. Customer—spec. information Customer : MAN : D 0826 LF02 Engine : 169.0 1st version kW Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 909 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 3.50...3.60 : (3.45...3.65) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1000 Rack travel in mm : 12.50...12.60 Del.quantity cm3/: 13.7...13.9 100 s: (13.5...14.1) cm3 : 0.3Spread 100 s: (0.6) rpm : 250.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1250 1st speed : 10.50...10.60 travel mm rpm : 810 2nd speed : 5.90...6.10 travel mm 500 3rd speed rpm 3.70...4.30 250 travel mm 4th speed rpm : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1225 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed Aneroid pressure h: 1000 Del.quantity : 137.0...141.0)

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 120...128 Setting point: Speed rpm Rack travel in mm: 16.5 Testina: 1st rack travel in: 11.50 Speed rpm : 1245...1260 2nd rack travel in: 4.00 rpm : 1300...1330 Speed 4th rack travel in: 1400 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 77...85 Setting point w/out bumper spring : 250 Speed man Rack travel in mm: 5.0 Testing: : 100 Speed rpm Minimum rack trave: 6.50 rpm : 250 Rack travel in mm : 4.90...5.10 CONSTANT REGULATION : 330...420 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 man hPa : -Pressure : 9.70...9.80 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 170 Rack travel in m: 10.00...10.10 2nd pressure hPa : 550 Rack travel in m: 11.90...12.20 3rd pressure hPa : 1000

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed rpm : 600

Del.quantity cm3/: 135.0...138.0 1000 s: (132.5...140.5)

Spread cm3 : 5.00 1000 s: (7.0) Aneroid pressure h: 1000 Speed rpm : 800

Del.quantity cm3/: 138.0...141.0 1000 s: (135.5...143.5)

Aneroid pressure h: 1000 Speed rpm : 1200

Del.quantity cm3/: 136.0...139.0 1000 s: (133.5...141.5)

Aneroid pressure h: Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...140.0 1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250 Rack travel in mm : 4.90...5.10 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: MAN #3-7036

Start-of-delivery mark is at start of delivery of cylinder 1

START CUT-OUT

Speed 1/min: 170 (200)

Rack travel in m: 12.50...12.60

G07

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAN 7,2 V Test sheet : 20.07.90 : 06.07.90 Edition Replaces : ISO-4113 Test oil : 0 403 456 110 Combination no. Injection pump Pump designation : PES6MW100/321RS1201 : 0 413 406 190 EP type number Governor Governor design. : RQ250/1200MW84-3 : 0 420 082 043 Governer no. Cust. part no. : 3-7047 Customer-spec. information : MAN Customer Engine : D 0826 LF02 : 165.0 1st version kW Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening | : 172...175 pressure, bar : 1 680 750 008 Test lines Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 15.00...0.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1000 1st speed Rack travel in mm: 12.50...12.60 Del.quantity cm3/: 13.7...13.9 100 s: (13.5...14.1) Spread cm3 : 0.3100 s: (0.6) rpm : 250.0 2nd speed Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.5 Spread 100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1300 1st speed 8.40...8.80 travel mm rpm : 1260 2nd speed : 6.60...6.80 travel mm : 345 3rd speed rpm : 4.00...4.60 travel mm rpm : 250 4th speed : 1.80...2.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 1000 Speed Rack travel in mm : 18.20...19.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed Aneroid pressure h: 1000

: 137.0...139.0

1000 : (135.0...141.0)

Del.quantity

Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 92...100 Testing: 1st rack travel in: 11.50 rpm : 1245...1260 Speed 2nd rack travel in: 4.00 rpm : 1300...1330 Speed 4th rack travel in: 1400 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 69...77 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 7.00 rpm : 250 Rack travel in mm : 5.40...5.60 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 12.50...12.60 rpm : 600 2nd speed Rack travel in m: 12.60...12.80 rpm : 800 3rd speed Rack travel in m: 12.50...12.80 rpm : 1200 4th speed Rack travel in m: 12.20...12.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 170 Pressure Rack travel mm : 10.20...10.30 Measurement 1/min: 500 Speed

1st pressure hPa : -Rack travel in m: 10.00...10.10 2nd pressure hPa : 550 Rack travel in m: 11.90...12.20 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.80 GO9

START CUT-OUT Speed 1/min: 180 (200) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/ : 135.0...138.0 1000 s: (132.5...140.5) : 5.00 Spread cm3 1000 s: (7.0) Aneroid pressure h: 1000 : 800 Speed rpm Del.quantity cm3/: 138.0...141.0 1000 s: (135.5...143.5) Aneroid pressure h: 1000 : 1200 Speed rpm Del.guantity cm3/: 134.5...137.5 1000 s: (132.0...140.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 74.0...76.0 1000 s: (72.0...78.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.50 rpm : 1245...1260 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0) LOW IDLE Speed rpm : 250 Rack travel in mm : 5.40...5.60 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 5.00 Spread 1000 s: (7.00)

: MAN #3-7047

Start-of-delivery mark is at start of

delivery of cylinder 1

Remarks:

Note remarks

: MMM 6,2 G Test sheet : 04.05.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 466 108

Injection pump

Pump designation : PES6MW100/320/3RS116

: 0 413 406 149 EP type number

Governor

Governor design. : RSV325...1200MW0A326

: D 420 085 085 Governer no.

Customer-spec. information Customer

: TD 226 B-6 Engine

: 136.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 014 Test Lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.00...4.10 : (3.95...4.15) Prestroke mm

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 11.6...11.8

100 s: (11.4...12.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 325.0 2nd speed Rack travel in mm: 6.6...6.7 Del.quantity cm3/: 0.8...1.2

100 s: (0.6...1.4) cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200 Aneroid pressure h: 700

: 116.5...118.5 Del.quantity

1000 : (114.5...120.5) cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Setting point:

: 800 Speed Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.40 rpm : 1240...1250 Speed 2nd rack travel in: 4.00 rpm : 1260...1300 Speed 4th rack travel in: 1380 rpm : 0.30...1.70Speed 5th rack travel in: 1295...1325 rpm : 4.00Speed LOW IDLE 1 Control lever position degrees: 15...23 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 6.6 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 325 Speed Rack travel in mm : 6.60...6.70 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.40...10.50 od speed rpm : 800 2nd speed Rack travel in m: 10.60...10.70 : 500 3rd speed rpm Rack travel in m: 10.70...10.80 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -: 8.50...8.60 Rack travel mm Measurement Speed $1/\min : 500$ 1st pressure hPa : 270 Rack travel in m: 9.10...9.20 2nd pressure hPa : 450 Rack travel in m: 9.90...10.20 3rd pressure hPa : 700 Rack travel in m: 10.60...10.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 : 800 Speed rpm Del.quantity cm3/: 113.5...116.5

1000 s: (110.5...118.5)

Spread cm3:5.00
1000 s: (7.0)
Aneroid pressure h: Speed rpm:500
Del.quantity cm3/:62.5...64.5
1000 s: (60.5...66.5)

BREAKAWAY
1st version
1mm rack travel less than

STARTING FUEL DELIVERY

full load rack tr: 9.40

Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 1000 s: (97.0...123.0) Rack travel in mm : 19.00...21.00

rpm : 1240...1250

LOW IDLE

Speed

Remarks:

Test electrically-released starting quantity (EES) with 12 volts

Test pressure, bar: 30...32 BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.45...3.55 Prestroke mm Note remarks : CLM 8,3 I 4 Test sheet : 06.07.90 Firing order Edition Replaces : ISO-4113 Test oil Combination no. : 0 403 466 117 Phasing Phasing Tolerance + - ° Injection pump Pump designation : PES6MW100/120RS1178 EP type number : 0 413 406 160 Governor Governor design. : RSV350...1250MW2A332 Governer no. : 0 420 085 110 BASIC SETTING 1st speed Cust. part no. : 3913734 Customer—spec. information Customer : CUMMINS/US Engine : 6 CT : 204.0 Spread 1st version kW : 2500 Rated speed TEST BENCH REQUIREMENTS 2nd speed Test oil inlet temp. °C : 38...42 Overflow valve Spread : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Speed Opening pressure, bar : 207...210 Orifice plate : 0,6 diameter mm 1st version Test lines : 1 680 750 014 Speed Outside diameter Del.quantity x Wall thickness x Length mm : 6.00x2.00x600 Spread (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values 1st version

: (3.40...3.60)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 : 0.50 (0.75) Time to cyl. no. : 1 rpm: 1250 Rack travel in mm : 14.10...14.20 Del.quantity cm3/: 15.5...15.7 100 s: (15.3...15.9) cm3 : 0.3100 s: (0.6) rpm : 350.0 Rack travel in mm : 6.2...6.4 Del.quantity cm3/: 2.0...2.4 100 s: (1.7...2.6) cm3 : 0.3 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 5.00 FULL LOAD DELIV. AT FULL LOAD STOP rpm : 1250 Aneroid pressure h: 900 155.5...157.5 1000 : (153.5...159.5) cm3 : 3.50 1000 : (6.00) Control Lever position degrees: 57...65

BEGINNING OF DELIVERY

Setting point:

rpm Speed : 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.10 Speed rpm : 1305...1315 2nd rack travel in: 4.00

rpm : 1425...1455 Speed

3rd rack travel in: 4.00

rpm : 1440...1470

4th rack travel in: 1650

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 30...38

Setting point w/out bumper spring

: 350 rpm

Rack travel in mm: 5.8

Testina:

: 100 Speed rpm

Minimum rack trave: 19.00

Speed rpm : 350 Rack travel in mm : 5.70...5.90

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 900 Pressure

: 14.10...14.20 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.60...10.80

2nd pressure hPa : 255

Rack travel in m: 11.60...11.80

3rd pressure hPa : 435

Rack travel in m: 13.00...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 88.5...92.5

1000 s: (86.5...94.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.10

Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...180.0 1000 s: (155.0...185.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

: 350 Speed rpm

Rack travel in mm : 6.20...6.40 Del.quantity cm3/: 20.0...24.0

1000 s: (17.5...26.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: CUM #3913734

Start-of-delivery mark at 14° angular displacement of the cam after start of

delivery of cylinder 1

Adjust stop lever to 0.5...1.0 mm

before stop.

Note remarks

: CUM 8,3 I 5 Test sheet : 10.08.90 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 466 117

Injection pump

Pump designation : PES6MW100/120RS1178

: 0 413 406 160 EP type number

Governor

Governor design. : RSV350...1250MW2A332

: 0 420 085 152 Governer no.

Cust. part no. : 3913734

Customer-spec. information : CUMMINS/US Customer

Engine : 6 CT

: 204.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Lenath mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.45...3.55 Prestroke mm

: (3.40...3.60)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 14.10...14.20

Del.guantity cm3/: 15.5...15.7

100 s: (15.3...15.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm : 6.2...6.4 Del.quantity cm3/ : 2.0...2.4 100 s: (1.7...2.6)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 900

: 155.5...157.5 1000 : (153.5...159.5) Del.quantity

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Setting point:

Speed rpm Rack travel in mm : 0.6

Testina:

1st rack travel in: 13.10

rpm : 1305...1315 Speed

2nd rack travel in: 4.00

rpm : 1425...1455 Speed

3rd rack travel in: 4.00

Speed rpm : 1440...1470 4th rack travel in: 1650

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 30...38

Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 5.8

Testing:

Speed : 100 rpm

Minimum rack trave: 19.00 rom : 350

Rack travel in mm : 5.70...5.90

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 900 Pressure

: 14.10...14.20 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.60...10.80

2nd pressure hPa : 255

Rack travel in m: 11.60...11.80

3rd pressure hPa : 435

Rack travel in m: 13.00...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm_ : 500 Speed

Del.quantity cm3/: 88.5...92.5

1000 s: (86.5...94.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10

rpm : 1305...1315 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 160.0...180.0 1000 s: (155.0...185.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed : 350 rpm

Rack travel in mm : 6.20...6.40 Del.quantity cm3/: 20.0...24.0 1000 s: (17.5...26.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: CUM #3913734

Start-of-delivery mark at 14° angular displacement of the cam after start of

delivery of cylinder 1

Adjust stop lever to 0.5...1.0 mm

before stop.

Note remarks

: CUM 8,3 Q Test sheet : 29.06.90 : 12.04.90 Edition Replaces : ISO-4113 Test oil

: 0 403 466 123 Combination no.

Injection pump

Pump designation : PES6MW100/120RS1137-

: 0 413 406 180 EP type number

Governor

: RSV500...1250MW2A319 Governor design.

-16

: 0 420 085 130 Governer no.

Cust. part no. : 3918357

Customer-spec. information : CUMMINS Customer

: 6 CTA-8.3 L Engine

: 171.0 1st version kW Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

Time to cyl. no.

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 13.1...13.3

100 s: (12.9...13.5)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 500.0 Rack travel in mm : 6.5...6.7

Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 131.0...133.0 Del.quantity

1000 : (129.0...135.0)

: 3.50 Spread CM3 1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 41...49 Setting point: rpm : 800 Speed Rack travel in mm: 0.6 Testing: 1st rack travel in: 11.60 rpm : 1320...1330 Speed 2nd rack travel in: 4.00 rpm : 1360...1370 Speed 3rd rack travel in: 4.00 rpm : 1360...1390 Speed 4th rack travel in: 1550 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring rpm : 500 Rack travel in mm: 6.1 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 500 Rack travel in mm : 6.00...6.20 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/: 123.5...126.5 1000 s: (121.0...129.0) cm3 : 5.00Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.60 rpm : 1320...1330 Speed STARTING FUEL DELIVERY : 100 Speed rpm

Del.quantity cm3/: 125.0...145.0

Rack travel in mm : 19.00...21.00

rpm

LOW IDLE

Speed

G17

1000 s: (122.0...148.0)

: 500

Rack travel in mm : 6.50...6.70
Del.quantity cm3/: 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: CUM #3918357 Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: MB 4,0 A 26 Test sheet : 16.08.90 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 474 004

Injection pump

Pump designation : PES4MW100/720RS1151

: 0 413 404 104 EP type number

Governor

Governor design. : RSV350...1300MW0A329

: 0 420 085 088 Governer no.

Customer-spec. information : MB-NFZ Customer

Engine : 0M364LA

1st version kW : 100.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

: 0-90-180-270 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1280 1st speed

Rack travel in mm : 12.40...12.50

Del.guantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3) cm3 : 0.3 100 s: (0.5) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280Aneroid pressure h: 900

: 97.0...99.0 : (95.0...101.0) Del.quantity 1000

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 114...122

Setting point:

Speed rpm Rack travel in mm: 0.6

1st rack travel in: 11.40

G18

Speed rpm : 1320...1330 2nd rack travel in: 4.00 rpm : 1385...1415 Speed 4th rack travel in: 1450 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever

position degrees: 82...90 Setting point w/out bumper spring rpm : 350 Speed

Rack travel in mm: 6.1

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 : 350 rpm Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00 Speed rpm : 390...450

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm Pressure hPa : -

Rack travel mm : 10.50...10.60

Measurement

1/min: 500 Speed

1st pressure hPa : 200 Rack travel in m: 11.10...11.20

2nd pressure hPa : 350

Rack travel in m: 11.80...12.10

3rd pressure hPa : 900

Rack travel in m: 12.40...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aræroid pressure h: 900 rpm : 600 Speed

Del.quantity cm3/: 77.0...80.0 1000 s: (74.5...82.5)

cm3 : 5.00 Spread 1000 s: (7.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 50.0...52.0 1000 s: (48.0...54.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

rpm : 1320...1330 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Speed : 350 rpm

Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 7.0...11.0 1000 s: (4.5...13.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Check hydraulic latching of starting fuel delivery with 1.5 bar air.

Note remarks

: MB 4,0 A 27 Test sheet Edition : 16.08.90

Replaces

Test oil : ISO-4113

Combination no. : 0 403 474 006

Injection pump

Pump designation : PES4MW100/720RS1127

EP type number : 0 413 404 103

Governor

: RSV350...1300MW0A322 Governor design.

Governer no. : 0 420 085 093

Customer-spec. information Customer : MB-NFZ

Engine : OM 364 A

1st version kW : 85.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2

: 0-90-180-270 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 8.0...8.2

100 s: (7.8...8.4)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.8...7.9 Del.quantity cm3/ : 0.9...1.3

100 s: (0.7...1.5)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

: 80.0...82.0 Del.quantity 1000 : (78.0...84.0)

: 3.50 cm3

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 116...124

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.10

: 1340...1350 Speed rpm 2nd rack travel in: 4.00 : 1430...1460 Speed rpm 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 82...90

Setting point w/out bumper spring rpm : 350 Rack travel in mm: 7.8

Testina: Speed : 100 rom Minimum rack trave: 9.50

Speed rpm : 350 Rack travel in mm : 7.80...7.90

CONSTANT REGULATION rpm : 330...600 Speed

TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 11.10...11.20 : 750 2nd speed rpm Rack travel in m: 11.90...12.10 : 585 3rd speed rpm

Rack travel in m: 12.10...12.30 4th speed rpm : 1000

Rack travel in m: 11.10...11.30

START CUT-OUT

1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Speed

: 750 rpm Del.quantity cm3/: 76.0...78.0 1000 s: (74.0...80.0)

cm3 : 5.00Spread

1000 s: (7.0)

Speed rpm : 585 Del.quantity cm3/ : 71.5...74.5 1000 s: (69.0...77.0)

RACK STOP ADJUSTMENT

: 100 Speed rpm

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 7.80...7.90 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

G21

Note remarks

Test sheet : MB 6,0 K Edition : 16.08.90

Replaces

Test oil : ISO-4113

Combination no. : 0 403 474 010

Injection pump

Pump designation : PES4MW100/720RS1193

EP type number : 0 413 404 109

Governor

Governor design. : RSV350...750MW0A336-

: 0 420 085 133 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M364A Engine

1st version kW : 84.0 : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.5...7.7 Del.quantity cm3/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 2.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 700

: 95.0...97.0 Del quantity 1000 : (93.0...99.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 72...80

Setting point:

Speed : 800 rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 12.80

rpm : 750...755 * Speed

2nd rack travel in: 4.00

rpm : 780...793 Speed

4th rack travel in: 950

rom : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 60...68

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.6 : 350 Speed rpm

Rack travel in mm : 7.50...7.70

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.50...7.70 Del.quantity cm3/: 9.0...13.0

1000 s: (6.5...15.5) cm3 : 3.50

Spread

1000 s: (5.50)

Remarks:

* Read off speed set under 1. Add 30...38 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed

profile.

Observe VDT-I-420/120

Note remarks

: RVI 5.5 A 1 : 06.07.90 Test sheet Edition Replaces : 13.06.88

: ISO-4113 Test oil

: 0 403 476 013 Combination no.

Injection pump

Pump designation : PES6MW80/320RS1104

: 0 413 486 002 EP type number

Governor

Governor design. : RSV300...1450MW0A801

: 0 420 085 067 Governer no.

Customer-spec. information Customer : RVI

Engine : MD060212

1st version kW : 97.8 Rated speed : 2900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 028

Inlet press., bar: 2.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 173...176

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 1.75...1.85 : (1.70...1.90) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 5.2...5.4

100 s: (5.0...5.6)

cm3 : 0.2Spread

100 s: (0.4)

2nd speed rpm : 300.0 Rack travel in mm : 6.60...6.70 Del.quantity cm3/: 1.2...1.5

100 s: (1.1...1.7)

cm3 : 0.2Spread

100 s: (0.3)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 900 Speed

Del.quantity : 52.5...54.5 : (50.5...56.5) 1000

: 2.50 Spread cm3

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm Rack travel in mm: 0.6

Testina:

1st rack travel in: 9.20

rpm : 1520...1530 Speed

2nd rack travel in: 4.00

rpm : 1615...1645 Speed

4th rack travel in: 1700 rpm : 0.80...1.70Speed LOW IDLE 1 Control lever position degrees: 29...37 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.6 : 300 Speed rpm Rack travel in mm : 6.60...6.70 Speed COM Maximum rack trave: 8.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 11.20...11.30 2nd speed rpm : 1450 Rack travel in m: 10.20...10.30 3rd speed rpm : 1100 Rack travel in m: 10.50...10.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1450 Del.quantity cm3/: 54.5...56.5 1000 s: (52.5...58.5) Spread cm3: 3.50 1000 s: (4.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 1520...1530 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 67.0...77.0 1000 s: (64.0...80.0) Rack travel in mm : 0.00...15.00 LOW IDLE rpm : 300 Speed Rack travel in mm : 6.60...6.70 Del.quantity cm3/: 12.5...15.5 1000 s: (11.0...17.0) cm3 : 2.00 Spread 1000 s: (3.50)

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

G25

Remarks:

Note remarks

: MB 6,0 D 91 Test sheet : 01.06.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 037A

Injection pump

Pump designation: PES6MW100/720RS1130

: 0 413 406 122 EP type number

Governor

Governor design. : RSV350...1300MW0A318

Governer no. : 0 420 085 052

Customer-spec. information : MB-NFZ Customer

: 0M 366 A Engine

1st version kW : 112.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 0-60-120-180-240-300 Phasing

: 1-5-3-6-2-4

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

Firing order

rpm: 1300 1st speed

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 7.4...7.6

100 s: (7.2...7.8)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 8.0...8.2 Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

: 74.0...76.0 Del.quantity

: (72.0...78.0) 1000

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55..63

Setting point:

Speed rom Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.20 Speed rpm : 1320...1330 2nd rack travel in: 4.00

rpm : 1380...1410 Speed

4th rack travel in: 1560

rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 25...33 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 8.1 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm: 350 Rack travel in mm : 8.00...8.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Dimension a mm : 2.00 Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 10.20...10.30 rpm : 800 2nd speed Rack travel in m: 12.20...12.30 d speed rpm : 750 3rd speed Rack travel in m: 12.20...12.30 4th speed rpm : 950 Rack travel in m: 11.70...11.80 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 800 Del.quantity cm3/: 83.0...86.0 1000 s: (80.5...88.5) cm3 : 5.00Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.20 Speed rpm : 1320...1330 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0) LOW IDLE rpm : 350 Speed Rack travel in mm : 8,00...8.20

Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

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G27

Note remarks

Test sheet : MB 6,0 0 46 Edition : 16.08.90 : 03.03.89 Replaces Test oil : ISO-4113

Combination no. : 0 403 476 055

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

: RSV350...1200MW0A316 Governor design.

-8

: 0 420 085 097 Governer no.

Customer—spec. information : MB-NFZ Customer

: 0M366A Engine

1st version kW : 92.0 : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 6.2...6.4

100 s: (6.0...6.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 6.3...6.9 Del.quantity cm3/: 0.9...1.1 100 s: (0.6...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 15.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 62.0...64.0 Del.quantity 1000 : (60.0...66.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 48...56

Setting point:

Speed rpm : 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 8.80

rpm : 1235...1240 * Speed 2nd rack travel in: 4.00

rpm : 1260...1273 Speed

3rd rack travel in: 4.00

rpm : 1300...1330 Speed 4th rack travel in: 1450

Speed rpm : 0.30...1.705th rack travel in: 1245...1260

rpm : 8.80 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 5.6

Testina:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 350

Rack travel in mm : 6.30...6.90

Rack travel in mm : 2.00

: 415...475 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.80...9.90

2nd speed rpm : 800

Rack travel in m: 10.70...10.80

3rd speed rpm : 950

Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

: 800 Speed rpm

Del.quantity cm3/: 61.0...63.0 1000 s: (59.0...65.0)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.80

rpm : 1235...1240 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.30...6.90 Del.quantity cm3/: 9.0...11.0

1000 s: (6.0...14.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

* Read off speed set under 1. Add 25...33 min-1 to this speed. The

control-rod travel under 2. must be attained with the calculated speed

profile.

Note remarks

: MB 6,0 D 37 : 16.08.90 Test sheet Edition : 03.03.89 Replaces : ISO-4113 Test oil

: 0 403 476 056 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

: RSV350...1200MW0A316 Governor design.

-5

: 0 420 085 090 Governer no.

Customer-spec. information Customer : MB-NFZ

: OM366A Engine

: 100.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x. Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 6.9...7.1

100 s: (6.7...7.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 6.1...6.7

Del.quantity cm3/: 0.9...1.1

100 s: (0.6...1.4)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 69.0...71.0 : (67.0...73.0) Del.quantity 1000

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Setting point:

: 800 Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.20

Speed rpm : 1240...1245 * 2nd rack travel in: 4.00

rpm : 1280...1293 Speed

3rd rack travel in: 4.00

rpm : 1300...1330 Speed

4th rack travel in: 1450

rpm : 0.30...1.70Speed 5th rack travel in: 1240...1255

rpm : 9.20 Speed

LOW IDLE 1

Setting point w/out bumper spring Speed rpm : 350

rpm Rack travel in mm: 6.4

Testing:

: 100 Speed nom Minimum rack trave: 19.00

rpm : 350 Speed

Rack travel in mm : 6.10...6.70 Rack travel in mm : 2.00

rpm : 415...475 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1200 1st speed

Rack travel in m: 10.20...10.30

2nd speed rpm : 800

Rack travel in m: 11.10...11.20

rpm : 900 3rd speed

Rack travel in m: 11.00...11.20

4th speed rpm : 1050

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

: 800 Speed rpm

Del.quantity cm3/: 69.0...71.0

1000 s: (67.0...73.0)

cm3 : 5.00 Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 1240...1245 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.10...6.70

Del.quantity cm3/: 9.0...11.0 1000 s: (6.0...14.0)

cm3 : 3.50

1000 s: (5.00)

Remarks:

Spread

* Read off speed set under 1. Add 40...48 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

: MB 6,0 D 39 Test sheet : 16.08.90 Edition : 03.03.89 Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 062

Injection pump

Pump designation : PES6MW100/720RS1172

: 0 413 406 155 EP type number

Governor

: RSV350...1300Mw0A329 Governor design.

-1

: 0 420 085 091 Governer no.

Customer-spec. information : MB-NFZ Customer

: OM 366 LA Engine

: 169.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65,...3.85)

Rack travel in mm : 19.00...21.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1280 1st speed

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280 Aneroid pressure h: 1000

: 105.0...107.0 Del.quantity

1000 : (103.0...109.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point: Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.40 Speed rpm : 1320...1330

2nd rack travel in: 4.00

rpm : 1395...1425 Speed 4th rack travel in: 1450 Speed rom : 0.30...1.70LOW IDLE 1 Control Lever position degrees: 22...30 Setting point w/out bumper spring : 350 rpm Rack travel in mm: 6.0 Testing: Speed : 100 rpm Minimum rack trave: 7.60 Speed rpm: 350 Rack travel in mm : 5.90...6.10 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -: 10.70...10.80 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 450 Rack travel in m: 11.90...12.10 2nd pressure hPa : 650 Rack travel in m: 13.40...13.60 3rd pressure hPa : 1000 Rack travel in m: 14.40...14.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 900 Speed rpm Del.quantity cm3/: 98.0...101.0 1000 s: (95.5...103.5) cm3 : 5.00Spread 1000 s: (7.0)

1st version
1mm rack travel less than
full load rack tr: 13.40
Speed rpm : 1320...1330
STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

Speed

Spread

Aneroid pressure h: -

rpm : 500

cm3 : 3.50

1000 s: (6.00)

1000 s: (29.0...35.0)

Del.quantity cm3/: 31.0...33.0

Note remarks

Test sheet

: MB 6,0 D 49 : 16.08.90 : 30.09.88 Edition Replaces

: ISO-4113 Test oil

Combination no. : 0 403 476 064

Injection pump

Pump designation : PES6MW100/720RS1129

EP type number : 0 413 406 121

Governor

: RSV350...1300MW0A329 Governor design.

: 0 420 085 095 Governer no.

Customer-spec. information : MB-NF7 Customer

: OM 366 LA Engine

1st version kW : 150.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65,...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

1st speed rpm: 1280

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.5...5.7

Del.quantity cm3/: 0.8...1.2 100 s: (0.6...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1280 Speed Aneroid pressure h: 900

: 97.0...99.0 1000 : (95.0...101.0) cm3 : 3.50 Del.quantity

Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 56...64

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.50

rpm : 1320...1330 Speed

2nd rack travel in: 4.00

: 1385...1415 Speed rpm 4th rack travel in: 1450

nom : 0.30...1.70Speed

LOW IDLE 1 Control lever

position degrees: 22...30

Setting point w/out bumper spring

rom : 350 Rack travel in mm: 5.6

Testing:

rpm : 100 Speed Minimum rack trave: 7.60 Speed rpm : 350 Rack travel in mm : 5.50...5.70

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

Aneroid/Altitude Compensator Test

1st version Settina

: 500 Speed rpm Pressure hPa : -

: 9.50...9.60 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 175

Rack travel in m: 10.00...10.10

2nd pressure hPa : 300

Rack travel in m: 10.80...11.10

3rd pressure hPa : 900

Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 750 Speed

Del.quantity cm3/: 86.5...89.5 1000 s: (84.0...92.0)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 48.0...50.0

1000 s: (46.0...52.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

rpm : 1320...1330 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 8.0...12.0 1000 s: (6.0...14.0)

cm3 : 3.50

Spread 1000 s: (5.50)

Remarks:

Test hydr. locking device for starting

with 500...1000 hPa air pressure.

Note remarks

: MB 6,0 D 90 Test sheet : 01.06.90 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 476 064A

Injection pump

Pump designation : PES6MW100/720RS1129

EP type number : 0 413 406 121

Governor

: RSV350...1300MW0A329 Governor design.

: 0 420 085 095 Governer no.

Customer-spec. information Customer : MB-NFZ

: DM 366 LA Engine

: 132.0 : 2600 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rom: 1200 1st speed

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 0.8...1.2 100 s: (0.6...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200Speed

Aneroid pressure h: 900

: 86.5...88.5 Del.quantity 1000 : (84.5...90.5) cm3 : 3.50

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.80

rpm : 1230...1240 Speed

2nd rack travel in: 4.00

rpm : 1285...1315 Speed 4th rack travel in: 1350 rom : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 22...30 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 5.6 Testina: rpm : 100 Speed Minimum rack trave: 7.60 Speed rpm : 350 Rack travel in mm : 5.50...5.70 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Dimension a mm : 1.60 Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.80...10.90 rpm : 700 2nd speed Rack travel in m: 12.30...12.40 rpm : 850 3rd speed Rack travel in m: 11.80...11.90 4th speed rpm : 650 Rack travel in m: 12.40...12.50 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : -: 9.50...9.60 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 175 Rack travel in m: 10.00...10.10 2nd pressure hPa : 300
Rack travel in m: 11.20...11.50
3rd pressure hPa : 900 Rack travel in m: 12.40...12.50

Spread cm3:5.00
1000 s: (7.0)
Aneroid pressure h: Speed rpm:500
Del.quantity cm3/:48.0...50.0
1000 s: (46.0...52.0)

BREAKAWAY
1st version
1mm rack travel less than

STARTING FUEL DELIVERY

full load rack tr: 9.80

Speed rum : 100 Del.quantity cm3/ : 88.0...98.0 1000 s: (85.0...101.0)

rpm : 1230...1240

LOW IDLE

Speed

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

1st version Aneroid pressure h: 900 Speed rpm : 700

Speed rpm : 700
Del.quantity cm3/: 97.5...100.5

FUEL DELIVERY CHARACTERISTICS

1000 s: (95.0...103.0)

Note remarks

Test sheet : MB 6,0 D 48 Edition : 16.08.90 : 07.02.89 Replaces

: ISO-4113 Test oil

: 0 403 476 065 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1129-

EP type number : 0 413 406 140

Governor

Governor design. : RSV350...1300MW0A331

Governer no. : 0 420 085 096

Customer-spec. information Customer : MB-NFZ

Engine : OM 366 LA

: 150.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: U 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1280 1st speed

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 9.3...9.5

100 s: (9.1...9.7)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 6.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280 Aneroid pressure h: 900

Del.quantity : 95.0...97.0)
1000 : (91.0...97.0)
1000 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Setting point:

rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.20

rpm : 1320...1330 Speed

2nd rack travel in: 4.00

: 1385...1415 Speed rpm

4th rack travel in: 1450

rpm : 0.30...1.70Speed

LOW IDLE 1 Control lever

position degrees: 26...34

Setting point w/out bumper spring

rpm Rack travel in mm: 6.0

Testina:

rpm : 100 Speed Minimum rack trave: 7.60 : 350 Speed rpm

Rack travel in mm : 5.90...6.10

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rom Pressure hPa : -

Rack travel mm : 9.20...9.30

Measurement

Speed 1/min: 500

1st pressure hPa : 175

Rack travel in m: 9.80...9.90

2nd pressure hPa : 300

Rack travel in m: 10.80...11.10 3rd pressure hPa : 900

Rack travel in m: 11.20...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 750 Speed COM

Del.quantity cm3/: 83.0...87.0 1000 s: (81.0...89.0)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 46.0...48.0 1000 s: (44.0...50.0)

BREAKAWAY

H11

1st version

1mm rack travel less than

full load rack tr: 10.20

rpm : 1320...1330 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 9.0...13.0

1000 s: (7.0...15.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Test hydr. Locking device for starting with 500...1000 hPa air pressure.

Note remarks

Test sheet : MB 6,0 D 72 Edition : 16.08.90

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 476 072

Injection pump

Pump designation : PES6MW100/720RS1172-

1

EP type number : 0 413 406 166

Governor

Governor design. : RSV350...1300MW0A329

-5

Governer no. : 0 420 085 119

Customer—spec. information Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 184.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65) Rack travel in mm : 19.00...21.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1280

Rack travel in mm : 15.40...15.50

Del.quantity cm3/: 12.2...12.4

100 s: (12.0...12.6)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.0...1.4 100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280 Aneroid pressure h: 1500

Del.quantity : 122.0...124.0 1000 : (120.0...126.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Setting point:

Speed rpm : 800 Rack travel in mm : 0.6

Testing:

1st rack travel in: 14.40

rpm : 1330...1340 Speed

2nd rack travel in: 4.00

rpm : 1420...1450 Speed

4th rack travel in: 1580

rpm : 0.30...1.70Speed

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.0

Testina:

Speed : 100 rpm Minimum rack trave: 19.00 rpm : 350 Speed

Rack travel in mm : 5.90...6.10

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa :

: 11.00...11.10 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 450

Rack travel in m: 12.90...13.10

2nd pressure hPa : 650

Rack travel in m: 13.90...14.10 3rd pressure hPa : 1500

Rack travel in m: 15.40...15.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 : 800 Speed rpm

Del.quantity cm3/: 113.5...116.5 1000 s: (111.0...119.0)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 33.0...35.0 1000 s: (31.0...37.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.40

rpm : 1330...1340 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 105.0...115.0

1000 s: (102.0...118.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 10.0...14.0

1000 s: (7.5...16.5)

cm3 : 3.50 Spread

1000 s: (5.00)

Remarks:

Test hydr. locking device for starting

with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 6,0 E : 06.07.90 Edition Replaces : ISO-4113 Test oil Combination no. : 0 403 476 073 Injection pump Pump designation: PES6MW80/320RS1104-1 : 0 413 486 004 EP type number Governor Governor design. : RSV300...1450MW0A801 : 0 420 085 067 Governer no. Customer—spec. information Customer : RVI : 797 NFA Engine : 89.0 1st version kW : 2900 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 028 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Open ind : 173...176 pressure, bar Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 10.20...10.30 Del.guantity cm3/ : 5.3...5.5 100 s: (5.1...5.7) cm3 : 0.2Spread 100 s: (0.4) 2nd speed rpm : 300.0 Rack travel in mm : 5.10...5.80 Del.quantity cm3/: 1.2...1.5 100 s: (1.1...1.7) cm3 : 0.2Spread 100 s: (0.3) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed Del.quantity 1000 Speed : 53.0...55.0 : (51.0...57.0) : 2.50 cm3 Spread 1000 : (4.00) RATED SPEED 1st version Control lever position degrees: 56...64 Setting point: Speed Rack travel in mm : 0.6 Testing: 1st rack travel in: 7.90 rpm : 1525...1535 Speed 2nd rack travel in: 4.00

rpm : 1610...1640

Speed

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

: 1.75...1.85

: (1.70...1.90)

4th rack travel in: 1700 rpm : 0.30...1.70 Speed LOW IDLE 1 Control Lever position degrees: 29...37 Setting point w/out bumper spring rpm Rack travel in mm: 5.5 Speed rpm Rack travel in mm : 5.10...5.80 Speed rpm : 250 Maximum rack trave: 7.00 TORQUE CONTROL Torque control curve - 1st version rpm : 900 1st speed 2nd speed : 1450 rpm Rack travel in m: 8.80...9.00 : 1050 3rd speed rpm Rack travel in m: 9.80...10.00 4th speed rpm : 1170 Rack travel in m: 9.30...9.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1450 Del.quantity cm3/ : 53.0...55.0 1000 s: (51.0...57.0) cm3 : 3.50Spread 1000 s: (4.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 7.90 Speed rpm : 1525...1535 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 75.0...85.0 1000 s: (72.0...88.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 5.10...5.80 Del.quantity cm3/ : 12.5...15.5 1000 s: (11.0...17.0) Spread cm3 : 2.001000 s: (3.50) Remarks:

H15

Test hydr. Locking device for starting with 500...1000 hPa air pressure.

Note remarks

Test sheet : MAN 7,2 Z Edition : 19.06.90

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 074B

Injection pump

Pump designation : PES6MW100/320RS1183

EP type number : 0 413 406 169

Governor

Governor design. : RSV300...900MW1AV189

: 0 420 085 ... Governer no.

Cust. part no. : 2-7938B

Customer-spec. information Customer : MAN

Engine : 00826LE20

1st version kW : 141.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 681 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 : (2.95...3.15) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 15.6...15.8

100 s: (15.4...16.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 5.7...6.4 Del.quantity cm3/: 3.0...3.4

100 s: (2.8...3.6)

cm3 : 0.6 Spread

100 s: (0.9)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

Del.quantity : 156.0...158.0

1000 : (154.0...160.0)

: 3.50 Spread cm3

1000 -: (6.00)

RATED SPEED

1st version

Control lever

position degrees: 34...42

Setting point:

Speed : 800 rpm Rack travel in mm : 0.6

Testing: 1st rack travel in: 12.80 rpm : 900...905 * Speed 2nd rack travel in: 4.00 Speed rpm: 937...950 4th rack travel in: 1100 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 14...22 Setting point w/out bumper spring Speed : 300 rpm Rack travel in mm: 6.0 Speed rpm : 300
Rack travel in mm : 5.70...6.40
Rack travel in mm : 2.00
Speed rpm : 310...370 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.80 Speed rpm : 900...905 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 125.0...135.0 1000 s: (122.0...138.) HIGH IDLE 1st version Speed rom Rack travel in mm: 4.00 LOW IDLE Speed rpm : 300 Rack travel in mm : 5.70...6.40 Del.quantity cm3/: 30.0...34.0 1000 s: (28.5...36.5) cm3 : 6.00 1000 s: (9.00) Spread Remarks: Start-of-delivery mark is at start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,0 D 75 Test sheet : 06.09.90 Edition : 19.03.90 Replaces Test oil : ISO-4113 Combination no. : 0 403 476 075 Injection pump EP type number : 0 413 406 122 Governor Governor design. : 0 420 085 124 Governer no. Customer-spec. information Customer : MB-NFZ : OM366A Engine 1st version kW : 84.0 : 1500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses

Pump designation : PES6MW100/720RS1130 : RSV350...750MW0A336-Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.70...3.80 Prestroke mm : (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasina Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 12.00...12.10 Del.quantity cm3/: 8.0...8.2 100 s: (7.8...8.4) cm3 : 0.3Spread 100 s: (0.6) rpm : 350 2nd speed Rack travel in mm: 6.5...6.8 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) Spread cm3: 0.3 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed Del.quantity : 80.0...82.0 1000 : (78.0...84.0) : 3.50 Spread cm3 1000 RATED SPEED 1st version Control lever position degrees: 24...32 Setting point: Speed rpm Rack travel in mm : 0.6 Testing: 1st rack travel in: 11.00 Speed rpm: 750...755 * 2nd rack travel in: 4.00 Speed rpm: 775...788

4th rack travel : 800

rpm : 0.3...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 11...19

Setting point w/out bumper spring

: 350 rpm Rack travel in mm: 6.6

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm : 6.50...6.80

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00 Speed rpm : 750...755

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.50...6.80 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Observe VDT-I-420/120

* Read off speed set under 1. Add 25...33 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

: MB 6,0 D 97 Test sheet : 31.08.90 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 476 076

Injection pump

Pump designation : PES6MW100/720RS1120

: 0 413 406 112 EP type number

Governor

Governor design. : RSV350...1300MW0A2-1

: 0 420 085 125 Governer no.

Customer-spec. information : MB-NFZ Customer

: OM 366 LA Engine

: 142.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 0-60-120-180-240-300 Phasing

: 1-5-3-6-2-4

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

Firing order

rpm : 13001st speed

Rack travel in mm : 13.00...13.10

Del.guantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 6.2...6.9 Del.quantity cm3/ : 1.0...1.2

100 s: (0.6...1.5)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

Del.quantity : 95.0...97.0 1000 : (93.0...99.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 106...114

Setting point:

rpm : 800 Speed Rack travel in mm: 0.6

Testing:

1st rack travel in: 12.00 Speed rpm : 1340...1345 * 2nd rack travel in: 4.00

rpm : 1397...1410 Speed

H20

3rd rack travel in: 4.00

rpm : 1460...1490 Speed

4th rack travel in: 1600

rpm : 0.30...1.70Speed 5th rack travel in: 1335...1350 Speed rpm : 12.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.5

Testina:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 350 Speed

Rack travel in mm : 6.20...6.90

Rack travel in mm : 2.00

: 420...480 Speed rom

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : -Pressure

: 11.60...11.70 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : 300 Rack travel in m: 12.10...12.20

2nd pressure hPa : 360

Rack travel in m: 12.60...12.90

3rd pressure hPa : 1000

Rack travel in m: 13.00...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 : 750 Speed rpa

Del.quantity cm3/: 83.0...86.0

1000 s: (80.5...88.5)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 50.0...52.0 1000 s: (48.0...54.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

rpm : 1340...1345 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 85.0...95.0

1000 s: (92.0...98.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.20...6.90 Del.quantity cm3/: 10.0...12.0

1000 s: (6.5...15.5)

cm3 : 3.50Spread

1000 s: (5.00)

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

* Read off speed set under 1. Add 57...65 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

: MB 6,0 F : 16.08.90 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 076

Injection pump

Pump designation : PES6MW100/720RS1120-

EP type number : 0 413 406 172

Governor

Governor design. : RSV350...1300MW0A2-1

: 0 420 085 125 Governer no.

Customer-spec. information Customer : MB-NFZ

: DM 366 LA Engine

1st version kW : 142.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 6.2...6.9 Del.quantity cm3/: 1.0...1.2

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

: 95.0...97.0 Del.quantity 1000 : (93.0...99.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Setting point:

: 800 Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 12.00

rpm : 1340...1345 *Speed

2nd rack travel in: 4.00

rpm : 1397...1410 Speed 3rd rack travel in: 4.00 : 1460...1490 Speed rpm 4th rack travel in: 1600 rpm : 0.30...1.70Speed 5th rack travel in: 1335...1350 rpm : 12.00Speed LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm: 6.5 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 6.20...6.90 Rack travel in mm : 2.00 rpm : 420...480 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure : 11.60...11.70 Rack travel mm Measurement 1/min : 500Speed 1st pressure hPa : 300 Rack travel in m: 12.10...12.20 2nd pressure hPa : 360 Rack travel in m: 12.60...12.90 3rd pressure hPa : 1000 Rack travel in m: 13.00...13.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 750 Speed Del.quantity cm3/: 83.0...86.0 1000 s: (80.5...88.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 50.0...52.0 1000 s: (48.0...54.0) BREAKAWAY

1mm rack travel less than

full load rack tr: 12.00

rpm : 1340...1345 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 85.0...95.0 1000 s: (92.0...98.0)

LOW IDLE

: 350 Speed rom

Rack travel in mm : 6.20...6.90 Del.quantity cm3/: 10.0...12.0

1000 s: (6.5...15.5) cm3 : 3.50

Spread 1000 s: (5.00)

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

* Read off speed set under 1. Add 57...65 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

H23

1st version

Note remarks

: MB 6,0 D 74 Test sheet : 06.09.90 Edition Replaces : 01.02.90 : ISO-4113 Test oil

Combination no. : 0 403 476 078

Injection pump

Pump designation : PES6MW100/720RS1129

: 0 413 406 121 EP type number

Governor

Governor design: RSV350...750MWOA336

: 0 420 085 127 Governer no.

Customer-spec, information Customer : DB-NKW

: 0M566LA Engine

1st version kW : 94.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1- 5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350

Rack travel in mm: 5.8...6.8 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 2.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

: 700 Speed rom

: 85.0...87.0 Del.quantity 1000 : (83.0...89.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 74...82

Setting point:

Speed rom Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.50

rpm : 750...755 * Speed

2nd rack travel in: 4.00

rpm : 775...788 Speed 4th rack travel in: 850

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 60..68

Setting point w/out bumper spring Speed rpm : 350

Rack travel in mm: 6.3

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 Speed rpm: 350

Rack travel in mm : 5.80...6.80

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 rpm : 750...755 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 88.0...98.0 1000 s: (85.0...101.0)

LOW IDLE

Speed rpm: 350
Rack travel in mm: 5.80...6.80
Del.quantity cm3/: 9.0...13.0

1000 s: (6.5...15.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

* Read off speed set under 1. Add 25...33 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Observe VDT-I-420/120

* Read off speed set under 1. Add 25...33 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

Test sheet : MB 6,0 H : 19.03.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 079

Injection pump

Pump designation : PES6MW100/720RS1191

: 0 413 406 179 EP type number

Governor

Governor design. : RSV750...1250MW0A325

: 0 420 085 129 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M 366 LA Engine

: 162.0 : 2500 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening 1 4 1

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3,50...3,60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1230

Rack travel in mm: 13.90...14.00

Del.guantity cm3/: 11.4...11.6

100 s: (11.2...11.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 750.0 2nd speed Rack travel in mm : 5.2...6.0 Del.quantity cm3/ : 1.5...1.9 100 s: (1.2...2.1)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-Lever position

legree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 2.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1230 Speed

: 114.0...116.0 Del.quantity 1000 : (112.0...118.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 88...96

Setting point:

Speed : 800 rpm Rack travel in mm: 0.6

1st rack travel in: 12.90

rpm : 1270...1275 * Speed 2nd rack travel in: 4.00 rpm : 1295...1310 Speed 4th rack travel in: 1350 rom : 0.30...1.70Speed

LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring rpm : 750 Speed

Rack travel in mm: 5.6

Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 750 Speed

Rack travel in mm : 5.20...6.00

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 750 Del.quantity cm3/ : 106.0...109.0

1000 s: (103.5...111.5)

cm3 : 5.00Spread 1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.90

rpm : 1270...1275 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 95.0...105.0 1000 s: (92.0...108.0)

LOW IDLE

Speed rpm : 750 Rack travel in mm : 5.20...6.00 Del.quantity cm3/: 15.0...19.0

1000 s: (12.5...21.5)

cm3 : 3.50 Spread 1000 s: (5.00)

Remarks:

* Read off speed set under 1. Add 25...35 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : LIE 8,4 C : 17.05.90 Edition : 05.03.90 Replaces Test oil : ISO-4113 Combination no. : 0 403 476 081 Injection pump Pump designation : PES6MW100/720RS1196 : 0 413 406 184 EP type number Governor Governor design. : RSV350...1050MW1A338 : 0 420 085 138 Governer no. Customer-spec. information Customer : LIEBHERR Engine : D 916 T : 170.0 1st version kW Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 049 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** : 172...175 pressure, bar Test Lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.40...3.50

Rack travel in mm : 9.00...12.00

: (3.35...3.55)

Testina:

1st rack travel in: 10.10

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm : 10501st speed Rack travel in mm : 11.10...11.20 Del.guantity cm3/: 13.3...13.5 100 s: (13.1...13.7) cm3 : 0.3Spread 100 s: (0.6) rpm : 350.0 2nd speed Rack travel in mm: 4.6...5.2 Del.quantity cm3/: 1.5...1.9 100 s: (1.2...2.1) Spread cm3 : 0.3 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 5.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed Aneroid pressure h: 750 : 133.0...135.0 Del.quantity 1000 : (131.0...137.0) Spread cm3: 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 98...106 Setting point: : 800 Speed rpm Rack travel in mm: 0.6

Prestroke mm

rpm : 1070...1080 Speed 2nd rack travel in: 4.00 rpm : 1110...1140 Speed 4th rack travel in: 1200 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 4.9 Testing: Speed : 100 rpm Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 4.60...5.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : Pressure : 10.50...10.60 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 200 Rack travel in m: 10.70...10.80 2nd pressure hPa : 750 Rack travel in m: 11.10...11.20 FUEL DELIVERY CHARACTERISTICS 1st version Aneroic pressure h: 750 Speed rpm : 500 Del.quantity cm3/: 125.0...128.0 1000 s: (122.5...130.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: 750 : 800 Speed rpm Del.quantity cm3/: 132.0...135.0 1000 s: (129.5...137.5) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 115.5...117.5

1000 s: (113.5...119.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : MAN 7,2 X 1 : 31.07.90 Replaces Test oil : ISO-4113 : 0 403 476 082 Combination no. Injection pump Pump designation : PES6MW100/320RS1180-: 0 413 406 193 EP type number Governor Governor design. : RSV300...1100MW0A339 : 0 420 085 139 Governer no. Cust. part no. : 3-7062 Customer-spec. information : MAN Customer : D0826LUE51/160 Engine : 118.0 1st version kW : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina : 172...175 pressure, bar : 1 680 750 008 Test lines Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 0.6...1.0 100 s: (0.4...1.2) cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 4.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 1000

: 101.0...103.0 Del.quantity 1000 : (99.0...105.0)

: 3.50 cm3 Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 93...101

Setting point:

Speed Rack travel in mm : 0.6

Testing: 1st rack travel in: 9.10 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1350 rom : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring rom : 300 Rack travel in mm: 6.0 Testina: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 300 Speed Rack travel in mm : 5.90...6.10 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Dimension a mm : 0.70 Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 10.10...10.20 rpm : 800 2nd speed Rack travel in m: 10.80...10.90 3rd speed rpm : 600 Rack travel in m: 10.80...10.90 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : -: 9.00...9.10 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 220 Rack travel in m: 9.30...9.40 2nd pressure hPa : 380 Rack travel in m: 10.00...i0.30 3rd pressure hPa : 1000 Rack travel in m: 10.80...10.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

J03

Speed rpm : 800 Del.quantity cm3/ : 111.0...113.0 1000 s: (109.0...115.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/: 108.0...111.0 1000 s: (105.5...113.5) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 70.0...72.0 1000 s: (68.0...74.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.10 : 1145...1160 Speed rom STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 6.0...10.0
1000 s: (4.0...12.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7062

Start-of-delivery mark is at start of delivery of cylinder 1

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAN 7,2 Y Test sheet Edition : 31.07.90 Replaces : ISO-4113 Test oil : 0 403 476 083 Combination no. Injection pump Pump designation : PES6MW100/320RS1200-: 0 413 406 194 EP type number Governor Governor design. : RSV300...1100MW0A339 : 0 420 085 140 Governer no. : 3-7063 Cust. part no. Customer-spec. information Customer : MAN : D0826LE52/LUE51 Engine 1st version kW : 147.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Openina** : 172...175 pressure, bar Test lines : 1 680 750 008 Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 J04

: 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm: 1100 1st speed Rack travel in mm : 12.00...12.10 Del.quantity cm3/: 13.5...13.7 100 s: (13.3...13.9) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.6...1.0 100 s: (0.4...1.2) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 5.20 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 Aneroid pressure h: 1000 : 135.0...137.0 Del.quantity 1000 : (133.0...139.0) : 3.50 Spread cm3 : (6.00) 1000 RATED SPEED

1st version

Control lever

Setting point:

Speed

position degrees: 96...104

rom

: 800

Rack travel in mm: 0.6 1st version Aneroid pressure h: 1000 Testing: Speed rpm : 1000 Del.quantity cm3/ : 140.0...142.0 1000 s: (138.0...144.0) 1st rack travel in: 11.00 Speed rpm : 1145...1160 2nd rack travel in: 4.00 : 1220...1250 cm3 : 5.00Speed Spread MCD 1000 s: (7.0) 4th rack travel in: 1380 Aneroid pressure h: 1000 Speed : 0.30...1.70 rom : 800 Speed rpm Del.quantity cm3/: 154.0...157.0 1000 s: (151.5...159.5) LOW IDLE 1 Control lever Aneroid pressure h: 1000 position degrees: 72...80 Speed rpm : 600 Del.quantity cm3/: 154.0...157.0 1000 s: (151.5...159.5) Setting point w/out bumper spring : 300 rpm Rack travel in mm: 6.0 Aneroid pressure h: rpm_ : 500 Speed Testing: Del.quantity cm3/: 70.0...72.0 1000 s: (68.0...74.0) : 100 Speed rpm Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm : 5.90...6.10 BREAKAWAY SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 1st version 1mm rack travel less than TORQUE CONTROL Dimension a mm : 1.10 full load rack tr: 11.00 Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.00...12.10 rpm : 1145...1160 Speed STARTING FUEL DELIVERY : 1000 2nd speed rpm Rack travel in m: 12.50...12.60 rpm : 100 3rd speed rpm : 800 Speed Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in m: 13.10...13.20 4th speed rpm : 600 Rack travel in m: 13.10...13.20 LOW IDLE Aneroid/Altitude Speed rpm : 300 Rack travel in mm : 5.90...6.10 Compensator Test Del.quantity cm3/ : 6.0...10.0 1000 s: (4.0...12.0) 1st version cm3 : 3.50 Setting Spread 1000 s: (5.50) : 500 Speed man hPa : Pressure 9.00...9.10 Rack travel mm Remarks: : MAN #3-7063 Measurement 1/min : 500Start-of-delivery mark is at start of Speed delivery of cylinder 1 1st pressure hPa : 210 Rack travel in m: 9.30...9.40

2nd pressure hPa : 700

Rack travel in m: 11.90...12.20

3rd pressure hPa : 1000 Rack travel in m: 13.10...13.20 FUEL DELIVERY CHARACTERISTICS

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 7,2 X : 03.08.90 Edition Replaces Test oil : ISO-4113 : 0 403 476 084 Combination no. Injection pump Pump designation : PES6MW100/320RS1180-: D 413 406 193 EP type number Governor : RSV300...1100MW0A339 Governor design. : 0 420 085 141 Governer no. : 3-7065 Cust. part no. Customer-spec. information Customer : MAN : D0826TUE51/130 Engine 1st version kW : 96.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar : 1 680 750 008 Test lines

Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rom: 1100 1st speed Rack travel in mm : 8.50...8.60 Del.guantity cm3/: 8.1...8.3 100 s: (7.9...8.5) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.6...1.0 100 s: (0.4...1.2) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 4.50FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed Aneroid pressure h: 1000 : 81.0...83.0 Del.quantity 1000 : (79.0...85.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 92...100

Setting point:

rpm

Speed

: 800

Rack travel in mm: 0.6 Aneroid pressure h: 1000 rpm : 1000 Speed Testing: Del.quantity cm3/: 87.0...89.0 1st rack travel in: 7.50 1000 s: (85.0...91.0) : 1145...1160 cm3 : 5.00Speed rpm Spread 2nd rack travel in: 4.00 1000 s: (7.0) rpm : 1170...1200 Aneroid pressure h: 1000 Speed : 800 4th rack travel in: 1350 Speed rpm Del.quantity cm3/: 91.0...94.0 1000 s: (88.5...96.5) rpm : 0.30...1.70 Speed Aneroid pressure h: 1000 LOW IDLE 1 : 600 Control lever Speed rpm Del.quantity cm3/: 83.0...86.0 position degrees: 69...77 1000 s: (80.5...88.5) Setting point w/out bumper spring rpm : 300° Aneroid pressure h: rpm : 500 Rack travel in mm: 6.0 Speed Del.quantity cm3/: 70.0...72.0 1000 s: (68.0...74.0) Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 300 BREAKAWAY Speed LDUI Rack travel in mm : 5.90...6.10 1st version SET IDLE AUXILIARY SPRING 1mm rack travel less than Rack travel in mm: 2.00 full load rack tr: 7.50 rpm : 1145...1160 TORQUE CONTROL Speed Dimension a mm : 1.00 Torque control curve - 1st version STARTING FUEL DELIVERY rpm : 1100 1st speed Rack travel in m: 8.50...8.60 2nd speed rpm : 1000 Speed : 100 rpm Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in m: 9.10...9.20 rpm : 800 3rd speed Rack travel in m: 9.50...9.60 rpm : 600 4th speed LOW IDLE Rack travel in m: 9.50...9.60 Speed rpm Rack travel in mm : 5.90...6.10 Aneroid/Altitude Del.quantity cm3/ : 6.0...10.0 Compensator Test 1000 s: (4.0...12.0) cm3 : 3.50 Spread 1000 s: (5.50) 1st version Settina : 500 Remarks: Speed rom : MAN #3-7065 hPa : -Pressure : 9.00...9.10 Rack travel mm Start-of-delivery mark is at start of delivery of cylinder 1 Measurement $1/\min : 500$ Speed 1st pressure hPa : 170 Rack travel in m: 9.20...9.30 2nd pressure hPa : 1000 Rack travel in m: 9.50...9.60 FUEL DELIVERY CHARACTERISTICS 1st version

J07

Note remarks

Test sheet : MB 6,0 L : 16.08.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 085

Injection pump

Pump designation : PES6MW100/720RS1205

: 0 413 406 195 EP type number

Governor

Governor design. : RSV350...1300MW0A329

: 0 420 085 142 Governer no.

Customer-spec. information Customer : MB-NFZ

: 0M 366 LA Engine

1st version kW : 184.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1280

Rack travel in mm : 15.50...15.60

Del.quantity cm3/: 12.8...13.0

100 s: (12.6...13.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6) cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280 Aneroid pressure h: 1200

Anerona p. Del.quantity 1000

: 128.0...130.0 : (126.0...132.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 96...104

Setting point:

Speed man : 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 14.50 rpm : 1330...1340 Speed 2nd rack travel in: 4.00 rpm : 1420...1450 Speed 4th rack travel in: 1580 Speed rpm : 0.30...1.70LOW IDLE 1 Control lever position degrees: 65...73 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 6.30...6.50 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -Rack travel mm : 11.30...11.40 Measurement $1/\min : 500$ Speed 1st pressure hPa : 450 Rack travel in m: 12.70...12.90 2nd pressure hPa : 650 Rack travel in m: 13.90...14.10 3rd pressure hPa : 1200 Rack travel in m: 15.50...15.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 800 Speed rpm Del.quantity cm3/: 122.0...125.0 1000 s: (119.5...127.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 48.0...50.0 1000 s: (46.0...52.0)

1st version
1mm rack travel less than

full load rack tr: 14.50
Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...120.0
1000 s: (107.0...123.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50

1000 s: (5.00)

:

Remarks:

BREAKAWAY

Note remarks

Test sheet Edition : MB 6,0 H 2 : 16.08.90

Replaces

Test oil : ISO-4113

: 0 403 476 086 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1191

: 0 413 406 179 EP type number

Governor

Governor design. : RSV425...1000MW0A329

-8

: 0 420 085 143 Governer no.

Customer-spec. information Customer : MB-NFZ

: 0M 366 LA Engine

1st version kW : 151.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening 1

pressure, bar : 172...175

: 1 680 750 015 Test Lines

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 980 1st speed

Rack travel in mm : 14.90...15.00

Del.quantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 425.0 2nd speed Rack travel in mm: 6.3...6.5

Del.quantity cm3/: 0.9...1.3 100 s: (0.6...1.5)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 980 Speed Aneroid pressure h: 1000

Del.quantity : 170.0...114.0)

cm3 : 3.50 1000 : (6.00) Spread

RATED SPEED

1st version Control lever

position degrees: 86...94

Setting point:

: 800 Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.90 rpm : 1030...1040 Speed 2nd rack travel in: 4.00 Speed rpm : 1100...1130 4th rack travel in: 1250 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring rpm : 425 Rack travel in mm: 6.4 Testina: Speed : 100 rpm Minimum rack trave: 19.00 rpm : 425 Speed Rack travel in mm : 6.30...6.50 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : -Pressure Rack travel mm : 11.70...11.80 Measurement 1/min: 500 Speed 1st pressure hPa : 200 Rack travel in m: 12.60...12.80 2nd pressure hPa : 350 Rack travel in m: 13.90...14.10 3rd pressure hPa : 1000 Rack travel in m: 14.90...15.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 600 Speed rpm Del.quantity cm3/: 103.0...106.0 1000 s: (100.5...108.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed Lbw Del.quantity cm3/: 50.0...52.0 1000 s: (48.0...54.0)

1st version 1mm rack travel less than full load rack tr: 13.90 rpm : 1030...1040 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE Speed : 425 rpm Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) Spread cm3 : 3.50 1000 s: (5.00) Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

Note remarks

: MB 6,0 D 77 : 16.08.90 Test sheet Edition : 02.10.89 Replaces Test oil : ISO-4113

Combination no. : 0 403 476 087

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

Governor design. : RSV350...1200MW0A341

: 0 420 085 145 Governer no.

Customer-spec. information Customer : MB-NFZ

: 0M366A Engine

1st version kW : 100.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1- 5- 3- 6- 2- 4 Firing order

Phasing : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 6.9...7.1

100 s: (6.7...7.3)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm: 6.1...6.7 Del.quantity cm3/: 0.9...1.1 100 s: (0.6...1.4)

cm3 : 0.3 100 s: (0.5) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 69.0...71.0 : (67.0...73.0) Del.quantity 1000

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Setting point:

rpm : 800 Speed Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.20

rpm : 1240...1245 * Speed

2nd rack travel in: 4.00

rpm : 1280...1293 Speed

3rd rack travel in: 4.00

Speed : 1300...1330 rom

4th rack travel in: 1450

: 0.30...1.70 Speed rom 5th rack travel in: 1240...1255

rpm : 9.20Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.4

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 170m : 350 Speed

Rack travel in mm : 6.10...6.70 Rack travel in mm : 2.00

rpm : 415...475 Speed

TORQUE CONTROL

Dimension a mm : 0.90

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 10.20...10.30

rpm : 800 2nd speed

Rack travel in m: 11.10...11.20

rpm : 900 3rd speed

Rack travel in m: 11.00...11.20

4th speed rpm : 1050

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

: 800 Speed rpm

Del.quantity cm3/: 69.0...71.0

1000 s: (67.0...73.0)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 1240...1245 Speed

STARTING FUEL DELIVERY

Speed : 100 LDW.

Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.10...6.70 Del.quantity cm3/: 9.0...11.0

1000 s: (6.0...14.0) cm3 : 3.50 Spread

1000 s: (5.00)

Remarks:

* Read off speed set under 1.

Add 40...48 min-1 to this speed. The control-rod travel under 2. must be

attained with the calculated speed

profile.

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Note remarks

Test sheet : MB 6.0 D 92 Edition : 16.08.90

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 476 088

Injection pump

Pump designation : PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

Governor design. : RSV350...1300MWOA341

-1

Governer no. : 0 420 085 146

Customer—spec. information Customer : MB-NFZ

Engine : OM366A

1st version kW : 125.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening .

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 7.2...7.4

100 s: (7.0...7.6)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.0...7.6 Del.quantity cm3/: 0.9...1.1

100 s: (0.7...1.3)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed rpm: 800 Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1300

Del.quantity : 72.0...74.0 1000 : (70.0...76.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Setting point:

Speed rpm: 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.70

rpm : 1340...1345 * Speed 2nd rack travel in: 4.00 rpm : 1380...1393 Speed 3rd rack travel in: 4.00 : 1400...1430 Speed rpm 4th rack travel in: 1450 rpm : 0.30...1.70Speed 5th rack travel in: 1345...1360 : 9.70 Speed rpm LOW IDLE 1 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Rack travel in mm : 2.00 : 445...505 Speed rpm TORQUE CONTROL Dimension a mm : 1.60 Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 10.70...10.80 rpm : 700 2nd speed Rack travel in m: 12.30...12.40 3rd speed rpm : 825 Rack travel in m: 11.90...12.10 FUEL DELIVERY CHARACTERISTICS 1st version : 700 Speed rpm Del.quantity cm3/: 69.0...71.0 1000 s: (67.0...73.0) cm3 : 5.00Spread

1000 s: (7.0) : 825 Speed rpm Del.quantity cm3/: 73.0...75.0 1000 s: (71.0...77.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70 rpm : 1340...1345 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

: 350 Speed rpm

Rack travel in mm : 7.00...7.60 Del.quantity cm3/ : 9.0...11.0

Spread

1000 s: (7.0...13.0) cm3 : 3.50 1000 s: (5.50)

Remarks:

* Read off speed set under 1. Add 40...48 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

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Note remarks

Test sheet : MB 6,0 D 93 : 16.08.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 089

Injection pump

Pump designation : PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

: RSV350...1200Mw0A341 Governor design.

: 0 420 085 147 Governer no.

Customer-spec. information Customer : MB-NFZ

: 0M366A Engine

: 115.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

: 1 680 750 015 Test Lines

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 8.0...8.2

100 s: (7.8...8.4)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.0...7.6 Del.quantity cm3/: 0.9...1.1

100 s: (0.6...1.4) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 80.5...82.5 Del.quantity : (78.5...84.5) 1000

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 99...107

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 11.00

Speed rpm : 1240...1245 *

2nd rack travel in: 4.00

rpm : 1285...1298 Speed 3rd rack travel in: 4.00

Speed rpm : 1325...1355

4th rack travel in: 1450

rpm : 0.30...1.70Speed 5th rack travel in: 1240...1255 Speed rpm : 11.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.3

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 350 Rack travel in mm : 7.00...7.60

Rack travel in mm : 2.00

Speed rom : 445...505

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

rpm : 1200 1st speed

Rack travel in m: 12.00...12.10

rpm : 750 2nd speed

Rack travel in m: 12.50...12.60

3rd speed rpm : 1000

Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rom

Del.quantity cm3/: 74.5...76.5 1000 s: (72.5...78.5)

Spread cm3 : 5.00

1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1240...1245

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 7.00...7.60

Del.quantity cm3/: 9.0...11.0 1000 s: (6.0...14.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

* Read off speed set under 1.

Add 45...53 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed

profile.

Note remarks

Test sheet : MB 6,0 D 94 Edition : 16.08.90

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 090

Injestion pump

Pump designation : PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

Governor design. : RSV350...1200MW1A341

: 0 420 085 148 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M366A Engine

1st version kW : 92.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 6.2...6.4

100 s: (6.0...6.6)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0Rack travel in mm : 6.3...6.9 Del.quantity cm3/ : 0.9...1.1

100 s: (0.6...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 62.0...64.0 Del.quantity 1000 : (60.0...66.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Setting point:

: 800 Speed r pm Rack travel in mm: 0.6

Testing:

1st rack travel in: 8.80

rpm : 1235...1240 * Speed

2nd rack travel in: 4.00

rpm : 1270...1283 Speed

3rd rack travel in: 4.00

: 1300...1330 Speed man.

4th rack travel in: 1450

Speed rpm : 0.30...1.70 5th rack travel in: 1245...1260

Speed rpm : 8.80

LOW IDLE 1

Setting point w/out bumper spring

: 350 rpm Rack travel in mm: 6.6

Testing:

rpm : 100 Speed Minimum rack trave: 19.00

: 350 Speed rpm

Rack travel in mm : 6.30...6.90 Rack travel in mm : 2.00

Speed rpm : 415...475

TORQUE CONTROL

Dimension a mm : 0.90

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.80...9.90

rpm : 800 2nd speed

Rack travel in m: 10.70...10.80

: 950 3rd speed rpm

Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

: 800 Speed rpm

Del.quantity cm3/: 61.0...63.0 1000 s: (59.0...65.0)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80

rom : 1235,...1240 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

J19

Speed rpm : 350 Rack travel in mm : 6.30...6.90 Del.quantity cm3/: 9.0...11.0

1000 s: (6.0...14.0)

Spread

cm3 : 3.50 1000 s: (5.50)

Remarks:

* Read off speed set under 1.

Add 35...43 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed

profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,0 D 95 Test sheet : 16.08.90 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 476 091 Injection pump Pump designation : PES6MW100/720RS1131 EP type number : 0 413 406 123 Governor Governor design. : RSV350...1300MW0A342 : 0 420 085 149 Governer no. Customer-spec. information Customer : MB-NFZ Engine : OM 366 LA 1st version kW : 150.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar : 1 680 750 015 Test lines Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.70...3.80 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

```
: 1-5-3-6-2-4
Firing order
                  : 0-60-120-180-240-300
Phasing
                  : 0.50 (0.75)
Tolerance + - °
BASIC SETTING
1st speed
              rpm: 1300
Rack travel in mm : 12.60...12.70
Del.quantity cm3/: 10.0...10.2
             100 s: (9.8...10.4)
             cm3 : 0.3
Spread
             100 s: (0.6)
             rpm : 350.0
2nd speed
Rack travel in mm: 6.2...6.9
Del.quantity cm3/: 1.0...1.2
             100 s: (0.6...1.5)
             cm3 : 0.3
Spread
             100 s: (0.5)
GUIDE SLEEVE POSITION
Control-lever position
            Degree: -3
            rpm : 800
Rack travel in mm : 0.30...1.00
Governor spring pre-tension
Click setting x : 5.75
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
Speed
            rpm : 1300
Aneroid pressure h: 1000
                 : 100.0...102.0
Del.quantity
            1000 : (98.0...104.0)
            cm3
                 : 3.50
Spread
            1000 : (6.00)
RATED SPEED
1st version
Control lever
 position degrees: 44...52
Setting point:
Speed
           rpm
                : 800
Rack travel in mm: 0.6
```

1st rack travel in: 11.60

Prestroke mm

rpm : 1340...1345 * Speed 2nd rack travel in: 4.00 rpm : 1387...1400 Speed 3rd rack travel in: 4.00 : 1420...1450 Speed rpm 4th rack travel in: 1600 rom : 0.30...1.70Speed 5th rack travel in: 1335...1350 : 11.60 Speed rpm LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm: 6.5 Testina: : 100 Speed rpm Minimum rack trave: 19.00 Speed : 350 man Rack travel in mm : 6.20...6.90 Rack travel in mm : 2.00 Speed : 420...480 rpm Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 250 Pressure Rack travel mm : 11.30...11.40 Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 10.80...10.90 2nd pressure hPa : 400 Rack travel in m: 12.10...12.40 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/: 86.5...89.5 1000 s: (84.0...92.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 53.0...55.0 1000 s: (51.0...57.0)

1st version 1mm rack travel less than

full load rack tr: 11.60 rpm : 1340...1345 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.20...6.90 Del.quantity cm3/: 10.0...12.0 1000 s: (6.5...15.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

* Read off speed set under 1. Add 47...55 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Test hydr. locking device for starting with 500...1000 hPa air pressure.

Note remarks

Test sheet : MB 6,0 D 96 Edition : 16,08.90

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 476 092

Injection pump

Pump designation : PES6MW100/720RS1120

EP type number : 0 413 406 112

Governor

Governor design. : RSV350...1300MWOA342

-1

Governer no. : 0 420 085 150

Customer-spec. information Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 142.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...52

Prestroke mm : 3.59...5.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

Spread cm3:0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 6.2...6.9 Del.quantity cm3/ : 1.0...1.2

100 s: (0.6...1.5)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1300 Aneroid pressure h: 1000

Del.quantity : 95.0...97.0 1000 : (93.0...99.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 106...114

Setting point:

Speed rpm: 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 12.00

Speed rpm : 1340...1345 *

2nd rack travel in: 4.00

rpm : 1397...1410 Speed 3rd rack travel in: 4.00 : 1460...1490 Speed rpm 4th rack travel in: 1600 rpm : 0.30...1.70 Speed 5th rack travel in: 1335...1350 rom : 12.00Speed LOW IDLE 1 Setting point w/out bumper spring rom Rack travel in mm: 6.5 Testina: Speed : 100 rom Minimum rack trave: 19.00 : 350 rpm Rack travel in mm : 6.20...6.90 Rack travel in mm : 2.00 : 420...480 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -: 11.60...11.70 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 300 Rack travel in m: 12.10...12.20 2nd pressure hPa : 360 Rack travel in m: 12.60...12.90 3rd pressure hPa : 1000 Rack travel in m: 13.00...13.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 750 Del.quantity cm3/ : 83.0...86.0 1000 s: (80.5...88.5) Spread : 5.00 cm3 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 50.0...52.0 1000 s: (48.0...54.0) BREAKASAY

1mm rack travel less than

full load rack tr: 12.00 rpm : 1340...1345 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm Del.quantity cm3/: 85.0...95.0 1000 s: (92.0...98.0)

LOW IDLE

Speed : 350 rpm

Rack travel in mm : 6.20...6.90 Del.quantity cm3/: 10.0...12.0 1000 s: (6.5...15.5) Spread cm3: 3.50

1000 s: (5.00)

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

* Read off speed set under 1. Add 57...65 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

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1st version

Note remarks

: MB 6,0 H 3 : 31.08.90 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 093

Injection pump

Pump designation : PES6MW100/720RS1191

: 0 413 406 179 EP type number

Governor

Governor design. : RSV350...1300MW0A329

: 0 420 085 151 Governer no.

Customer-spec. information Customer : MB-NFZ

Engine : 0M 366 LA

1st version kW : 155.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 12801st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm $3/:0.9...1.\overline{3}$ 100 s: (0.6...1.5) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1280Aneroid pressure h: 1000

Del.quantity : 98.0...100.0 1000 : (96.0...102.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 105...113

Setting point:

rpm : 800 Speed Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.00 rpm : 1330...1340 Speed 2nd rack travel in: 4.00 rpm : 1420...1450 Speed 4th rack travel in: 1550 Speed rom : 0.30...1.70LOW IDLE 1 Control lever position degrees: 75...83 Setting point w/out bumper spring : 350 rom Rack travel in mm: 6.1 Testing: Speed rpm : 100 Minimum rack trave: 19.00 : 350 rpm Speed Rack travel in mm : 6.00...6.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure Rack travel mm : 10.10...10.20 Measurement 1/min: 500 Speed 1st pressure hPa : 300 Rack travel in m: 10.60...10.70 2nd pressure hPa : 380 Rack travel in m: 11.50...11.80 3rd pressure hPa : 1000 Rack travel in m: 14.00...14.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 600 Speed rpm Del.quantity cm3/: 88.0...92.0 1000 s: (86.0...94.0) Spread cm3: 5.00 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 35.0...37.0 1000 s: (33.0...39.0)

1st version 1mm rack travel less than

full load rack tr: 13.00 Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

ead cm3 : 3.50 1000 s: (5.00)

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

: 3.50...3.60 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Note remarks Firing order Test sheet : MAN 7,2 U : 17.05.90 Edition Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 403 486 102 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6MW100/321RS1192 : 0 413 406 182 EP type number BASIC SETTING Governor rom: 1300 Governor design. : RSV300...1300MW0A902 1st speed : 0 420 085 132 Rack travel in mm : 13.00...13.10 Governer no. : 3-7016 Del.guantity cm3/: 14.4...14.6 Cust. part no. 100 s: (14.2...14.8) Customer-spec, information Customer : MAN Spread cm3 : 0.3: D0826LE40 Engine 100 s: (0.6) : 199.0 1st version kW rpm : 300.0 : 2600 2nd speed Rated speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 1.3...1.7 TEST BENCH REQUIREMENTS 100 s: (1.0...1.9) cm3 : 0.3Test oil Spread 100 s: (0.5) inlet temp. °C : 38...42 Overflow valve GUIDE SLEEVE POSITION : 1 417 413 047 Control-lever position Degree: -3 rpm : 800 Inlet press., bar: 1.50 Rack travel in mm : 0.30...1.00 Test nozzle holder : 0 681 343 009 Governor spring pre-tension assembly Click setting x : 5.50Opening. : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar 1st version rpm : 1300 Test lines : 1 680 750 008 Speed Del.quantity : 144.0...146.0 1000 : (142.0...148.0) Outside diameter : 3.50 x Wall thickness Spread cm3 x Length mm : 6.00X2.00X600 1000 : (6.00) RATED SPEED (A) Injection pump setting values Insp. values in parentheses

1st version Control lever

Setting point:

Speed

position degrees: 64...72

rpm

: 800

J26

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Rack travel in mm: 0.6 Testing: 1st rack travel in: 12.00 rpm : 1350...1360 Speed 2nd rack travel in: 4.00 Speed rpm : 1460...1490 4th rack travel in: 1650 rom : 0.30...1.70Speed LOW IDLE 1 Control Lever position degrees: 29...37 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 4.8 Testing: : 100 Speed rpm Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm : 4.70...4.90 FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rom Del.quantity cm3/: 152.5...155.5 1000 s: (150.0...158.0) cm3 : 5.00Spread 1000 s: (7.0) Speed rpm : 500 Del.quantity cm3/ : 145.5...148.5 1000 s: (143.0...151.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 1350...1360 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed rpm : 300Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 13.0...17.0 1000 s: (10.5...19.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: MAN #3-7016

Note remarks

Test sheet : MB 8,7 Q : 16.08.90 Edition : 30.09.88 Replaces Test oil : ISO-4113

: 0 403 546 006 Combination no.

Injection pump

Pump designation : PE6MW100/720RS1177

: 0 413 506 107 EP type number

Governor

Governor design. : RQ300/1250MW12-1 : 0 420 082 010 Governer no.

Customer-spec, information Customer : MB-NFZ

: 0M360A Engine

: 155.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozale holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.80...3.90 Prestroke mm : (3,75...3.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 9.9...10.1

100 s: (9.7...10.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 8.3...8.4

Del.quantity cm3/: 1.3...1.7 100 s: (1.1...2.0)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1410

: 9.80...10.20 travel mm

1310 2nd speed rpm :

: 7.30...7.50 rpm : 420 travel mm

3rd speed

: 5.70...6.30 travel mm

rpm : 300 4th speed

: 2.30...2.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 650 Speed

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

: 99.5...101.5 Del.quantity

1000 : (97.5...103.5) : 3.50

Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 35...43

Setting point:

Speed rpm Rack travel in mm: 13.5

Testing:

1st rack travel in: 11.40

Speed rpm : 1295...1310 2nd rack travel in: 4.00

Speed rpm : 1395...1425 4th rack travel in: 1550

rpm : 0.10...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 8.3

Testing:

Speed : 220 rom

Minimum rack trave: 10.30

Speed rpm : 300
Rack travel in mm : 8.30...8.40
Rack travel in mm : 2.00

rpm : 395...435 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/ : 93.0...97.0 1000 s: (91.0...99.0)

cm3 : 5.00Spread

1000 s: (7.0)

RACK STOP ADJUSTMENT

: 500 Speed rpm

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

rpm : 1295...1310 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 125.0...135.0 1000 s: (122.0...138.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.30...8.40
Del.quantity cm3/: 13.5...17.5
1000 s: (11.0...20.0)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

K01

Note remarks

: MB 8,7 P 2 Test sheet : 16.08.90 Edition : 20.06.88 Replaces

: ISO-4113 Test oil

: 0 403 546 008 Combination no.

Injection pump

Pump designation : PE6MW100/720RS1126

EP type number : 0 413 506 101

Governor

Governor design. : RQ300/1250MW12-2 : 0 420 082 020 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M560A Engine

: 147.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.80...3.90 : (3.75...3.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 12.90...13.00

Del.guantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm: 8.6...8.7 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6) cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 650 Speed

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250 : 97.0...99.0 Del.quantity 1000 : (95.0...101.0)

: 3.50

Spread cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Setting point:

rpm Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.90

rpm : 1295...1310 Speed

2nd rack travel in: 4.00

rpm : 1415...1445 Speed

4th rack travel in: 1550

Speed rpm : 0.10...1.00 LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 8.6 Testing: Speed rpm : 220 Minimum rack trave: 10.40 : 300 Speed rpm Rack travel in mm : 8.60...8.70 Rack travel in mm : 2.00 : 430...470 Speed rpm FUEL DELIVERY CHARACTERISTICS 1st version : 750 Speed rpm Del.quantity cm3/: 90.5...94.5 1000 s: (88.5...96.5) Spread cm3 : 5.00 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.90 : 1295...1310 Speed rpm STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 80.0...90.0 1000 s: (77.0...93.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 8.60...8.70 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: :

Note remarks

: KHD 13,4d11 Test sheet : 13.16.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 548 024

Injection pump

Pump designation : PE8MW100/720LS1128

: 0 413 508 103 EP type number

Governor

Governor design. : RQV300...1150MW56-4

: 0 420 083 155 Governer no.

Customer-spec. information

Customer : KHD

: BF 8L 513 Engine

: 243.0 1st version kW : 2300 Rated speed : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 740 014 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.10...3.20 Prestroke mm

: (3.05...3.25)

Rack travel in mm : 9.00...12.00 Firing order : 1-8-7-2-6-5-4-3

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 15.1...15.3

100 s: (14.9...15.5)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.6...6.8

Del.quantity cm3/: 1.3...1.7 100 s: (1.1...1.9)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320

: 10.00...10.40 travel mm

rpm : 1210 2nd speed

: 8.80...9.00 travel mm

3rd speed rpm : 600 : 3.90...4.50

travel mm : 300 4th speed rpm

: 1.00...1.40 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

Aneroid pressure h: 1000

: 151.0...153.0 Del.quantity 1000 : (149.0...155.0)

Spread cm3 : 3.50

1000 : (6.00)

K04

RATED SPEED

1st version

Control Lever

position degrees: 52...60

Testing:

1st rack travel in: 12.60 Speed rpm : 1190...1200 2nd rack travel in: 4.00

rpm : 1290...1320 Speed

4th rack travel in: 1350

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 19...27

Testing:

: 100 Speed rpm

Minimum rack trave: 8.20

rpm : 300

Rack travel in mm : 6.60...6.80

Rack travel in mm : 2.00

rpm : 430...490 Speed

CONSTANT REGULATION

Speed rpm : 310...420

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

hPa : 710 Pressure

: 13.00...13.10 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.80...11.90

2nd pressure hPa : 530 Rack travel in m: 12.20...12.50

3rd pressure hPa : 1000

Rack travel in m: 13.60...13.70

START CUT-OUT

1/min : 220 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed

rpm : 450

Del.quantity cm3/: 108.0...110.0

1000 s: (106.0...112.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.60...6.80

Del.quantity cm3/: 13.0...17.0 1000 s: (11.0...19.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

Test sheet : PER 17,4 a : 29.05.90 Edition Replaces

: 2.10.89 : ISO-4113 Test oil

: 0 405 638 201 Combination no.

Injection pump

Note remarks

Pump designation : PE8PM120A120RS7119

: 0 415 628 201 EP type number

Governor

Governor design. : RQ350/1150PA791 : 0 421 801 340 Governer no.

Customer-spec. information Customer : PERKINS

: MCY 80 Engine

1st version kW : 410.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 : (4.95...5.15) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1- 3- 6- 5- 4- 8-7- 2 Firing order

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rom: 11501st speed

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 25.7...25.9

100 s: (25.4...26.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm: 4.9...5.1

Del.guantity cm3/: 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 750

Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

Aneroid pressure h: 1200 Del.quantity : 257.0...259.0 1000 : (254.0...262.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 750 Rack travel in mm: 20.0

Testing:

1st rack travel in: 12.60 rpm : 1195...1210 Speed 2nd rack travel in: 4.00 : 1285...1315 Speed man

4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.0

Testina:

Speed rom Minimum rack trave: 6.40 : 350 Speed rpm

Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00 : 390...430 Speed rom

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 1200 Pressure

: 13.60...13.70 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.00...11.20

2nd pressure hPa : 890

Rack travel in m: 12.90...13.00

3rd pressure hPa : 590

Rack travel in m: 11.30...11.50

START CUT-OUT

 $1/\min : 300 (0)$ Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed : 700 rpm

Del.quantity cm3/: 259.0...265.0 1000 s: (256.0...268.0)

Aneroid pressure h: -

Speed rpm : 700 Del.quantity cm3/: 192.0...196.0

1000 s: (190.0...198.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.60

rpm : 1195...1210 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 195.0...215.0 1000 s: (192.0...218.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm: 350 Rack travel in mm: 4.90...5.10 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

Note remarks

: SCA 11,0 n1 : 5.9.50 Test sheet

Edition

Replaces Test oil

: ISO-4113

: 9 400 087 238

Injection pump

Combination no.

Pump designation : PE6P110A720RS3022

EP type number : 9 400 087 016

Governor

Governor design. : RQV250...1100PA183R

: 0 421 813 115 Governer no.

Customer-spec. information

: SAAB-SCANIA Customer

Engine : D 11

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6,00x1,50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

: 3.30...3.40 : (3.25...3.45) Prestroke mm

Rack travel in mm : 12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm: 12.00

Del.quantity cm3/: 12.5...13.3

100 s: (12.3...13.5)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 200 2nd speed Rack travel in mm : 9.00

Del.quantity cm3/: 3.9...4.9 100 s: (3.7...5.1)

Spread cm3 : 100 s: (-)

rpm : 600 3rd speed Rack travel in mm: 15.00

Del.quantity cm3/: 17.6...18.8

100 s: (-)

cm3 : -Spread 100 s: (-)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1120

: 8.20...8.40 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1120 Speed

Rack travel in mm : 15.00...17.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 135.0...137.0 Del.guantity

1000 : (133.0...139.0)

Spread cm3 : 4.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 11.50

rpm : 1135...1145 Speed 2nd rack travel in: 3.30 rpm : 1285...1315 Speed 3rd rack travel in: 9.2...13.6 : 1200 Speed rpm 4th rack travel in: 1410 Speed rom LOW IDLE 1 Control lever position degrees: 6...14 Testing: Speed : 150 rpm Minimum rack trave: 8.00 : 250 Speed rpm Rack travel in mm : 3.60...6.10 Rack travel in mm : 1.75 Speed rpm : 360...440 : 500 Speed rpm Maximum rack trave: 1.00 FUEL DELIVERY CHARACTERISTICS 1st version : 1200 Speed rpm Del.quantity cm3/: 38.0...48.0 1000 s: (-) Spread cm3 1000 s: (-) Speed rpm : 600 Del.quantity cm3/: 132.0...136.0 1000 s: (129.0...139.0) Spread cm3: 1000 s: (-) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.50 rpm : 1135...1145 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 190.0...240.0 1000 s: (-) LOW IDLE Speed rpm : 225 Del.quantity cm3/ : 8.0...12.0 1000 s: (-) Spread cm3 : 2.0 1000 s: (-)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm

K09

Note remarks

Test sheet : SCA 11,0 s3

: 5.9.50 Edition

Replaces

Test oil : ISO-4113

: 9 400 087 275 Combination no.

Injection pump

Pump designation : PE6P110A720RS3065

: 0 411 816 717 EP type number

Governor

Governor design. : RQV250...1100PA600

: 9 420 080 150 Governer no.

Customer-spec. information

: SAAB-SCANIA Customer

: D 11 Engine

: 149.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6,00X1,50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 3.30...3.40 Prestroke mm

: (3.25...3.45)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 13.5...13.7

100 s: (13.2...14.0)

cm3 : 0.4Spread

100 s: (0.8)

rpm : 225 2nd speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 0.9...1.3

100 s: (-) cm3 : 0.2 Spread

100 s: (0.4)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1100 1st speed : 8.00 travel mm

rpm : 800 2nd speed

: 5.60...5.80 travel mm

rpm : 400 3rd speed

: 2.80...3.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 135.0...137.0 Del.quantity

1000 : (133.0...139.0)

: 5.0 cm3 Spread : (8.0) 1000

RATED SPEED

1st version

Control lever

position degrees: 57...65

K10

Testing: 1st rack travel in: 11.50 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 : 1250...1280 Speed rpm 4th rack travel in: 1400 Speed rom : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 6...14 Testing: Speed : 100 CDM. Minimum rack trave: 7.30 : 225 rpm Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 : 345...405 Speed MON FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm cm3 : 6.0Spread 1000 s: (10.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.50 Speed rom : 1140...1150 STARTING FUEL DELIVERY

Del.quantity cm3/: 132.5...135.5 1000 s: (130.0...138.0) HIGH IDLE 1st version Rack travel in mm : 6.00...6.20 Del.quantity_cm3/: -1000 s: (-) cm3 : 4.0Spread 1000 s: (7.0) LOW IDLE : 225 Speed rom

K11

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 9.0...13.0

1000 s: (-) cm3 : 2.0 1000 s: (4.0) Spread

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm. Permissible alteration from 2.20...2.90

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : DEE 7,6 j 1 : 08.06.90 Edition Phasing : 0-60-120-180-240-300 Replaces : 7.4.89 Test oil : ISO-4113 Tolerance + - ° : 0.50 (0.75) Combination no. : 9 400 230 046 Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PES6A95D41ORS2561 EP type number : 9 410 230 006 1st speed rpm: 1100 Governor : RSV600...1100A2C2048 Rack travel in mm : 9.90...10.00 Governor design. -1L : 9 420 234 157 Del.guantity cm3/: 9.1...9.3 Governer no. 100 s: (8.9...9.5) Customer-spec. information : JOHN DEERE Customer cm3 : 0.3Spread : 6466T Engine 100 s: (0.6) : 110.0 1st version kW rpm : 600.0 : 2200 2nd speed Rated speed Rack travel in mm : 5.0...5.2 Del.quantity cm3/ : 1.2...1.6 TEST BENCH REQUIREMENTS 100 s: (0.9...1.8) cm3 : 0.3Test oil Spread inlet temp. °C 100 s: (0.5) : 38...42 Overflow valve GUIDE SLEEVE POSITION : 1 413 385 007 Control-lever position Degree: -3 rpm : 800 Inlet press., bar: 1.50 Speed Rack travel in mm : 0.30...0.70 Test nozzle holder : 0 681 343 009 Governor spring pre-tension assembly Click setting x :? Openina pressure, bar : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP 1st version : 1 680 750 008 rpm : 1100 Test lines Speed : 91.0...93.0 Del.quantity 1000 : (89.0...95.0) Outside diameter : 3.50 x Wall thickness Spread cm3 : 6.00X2.00X600 1000 : (6.00) x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version Control lever per values position degrees: 44...52 BEGINNING OF DELIVERY Testing: Test pressure, bar: 27...29 1st rack travel in: 8.90 rpm : 1145...1155 : 1.85...1.95 Prestroke mm Speed : (1.80...2.00) 2nd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

rpm : 600 Speed Rack travel in mm: 4.6

Testina:

: 100 Speed rom Minimum rack trave: 19.00 rpm : 600

Rack travel in mm : 5.00...5.20

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.90...10.00 2nd speed rpm : 950

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950 Del.quantity cm3/: 104.0...108.0 1000 s: (101.5...110.5)

BREAKAWA.1

1st version 1mm rack travel less man

full load rack tr: 8.90

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

HIGH IDLE

1st version

: 1200 Speed rpm

Rack travel in mm : 4.70...4.90

LOW IDLE

: 600 Speed rpm

Rack travel in mm : 5.00...5.20

Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: JOHN DEERE # RE10472

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Start-of-delivery mark = 15.5° after

start of delivery cyl. 1.

Note remarks

Test sheet : DEE 7,6 j : 08.06.90 Edition : 3.3.89 Replaces Test oil : ISO-4113

Combination no. : 9 400 230 047

Injection pump

Pump designation : PES6A95D41ORS2561 EP type number : 9 410 230 006

Governor

Governor design. : RSV600...1100A2C2049

-1L

: 9 420 234 158 Governer no.

Customer-spec. information

: JOHN DEERE Customer

: 6466TH-02 Engine

: 125.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 413 385 007

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 27...29

: 1.85...1.95 Prestroke mm

: (1.80...2.00)

Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rom: 1100 1st speed

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 10.7...10.9

100 s: (10.5...11.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 600.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 1.2...1.6 100 s: (0.9...1.8)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100 Speed

: 107.0...109.0 Del.quantity 1000 : (105.0...111.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.60

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

rpm : 1200...1230 Speed

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

Speed rpm : 600 Rack travel in mm : 4.5

Testing:

: 100 Speed LDW. Minimum rack trave: 19.00 rpm : 600

Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 10.60...10.70

2nd speed rpm : 950

Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950

Del.quantity cm3/: 120.0...124.0

1000 s: (118.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 155.0...175.0

1000 s: (150.0...180.0)

Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1200 Rack travel in mm : 4.70...4.90

LOW IDLE

: 600 Speed rpm

Rack travel in mm : 4.90...5.10

Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: JOHN DEERE # RE28881

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control spring retainer.

Start-of-delivery mark = 15.5° after

start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: CUM 8,3 a11 : 08.06.90 : 28.9.89 Test sheet Edition Replaces : ISO-4113 Test oil

: 9 400 230 089 Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

: RSV400...1100A0c2190 Governor design.

-3R

: 9 420 234 125 Governer no.

Customer-spec. information : C.D.C. Customer

: 6 C 8.3 Engine

: 129.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 27...29 Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.60...10.70

Del.guantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

cm3 : 0.4Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.6100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 95.5...97.5 Del.quantity 1000 : (93.5...99.5)

: 4.00 cm3 Spread

1000 : (6.50)

RATED SPEED

1st version Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.60 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 3rd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 5.4 Testing: Speed rpm : 100 Minimum rack trave: 19.00 : 400 Speed rpm Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.60 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 6.00 1000 s: (8.00) Remarks: : C.D.C. # 3915960 Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a20 : 17.05.90 Test sheet Edition Replaces : 2.5.89 Test oil : ISO-4113

: 9 400 230 089CA Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

: 3911945 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

1st version kW : 126.8 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 9.6...9.8 -

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

: 1100 Speed rpm

Del.quantity : 96.5...98.5 1000 : (94.5...100.5)

> : 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 9.70

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1200...1230

3rd rack travel in: 4.00

Speed rpm : 1200...1230 4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 27...35 Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.4

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.70...10.80 ad speed rpm : 750

2nd speed

Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 119.5...123.5 1000 s: (117.5...125.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a21 Edition : 17.05.90 Replaces : 2.5.89 Test oil : ISO-4113 Combination no. : 9 400 230 089CB Injection pump Pump designation : PES6A1000320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1250A0C2190 : 3191958 Cust. part no. Customer-spec. information Customer : C.D.C. : 6 CT 8.3 ltr Engine : 160.0 1st version kW : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Openina . : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 27...29 K20

: 2.80...2.90 : (2.75...2.95) Prestroke mm Rack travel in mm: 10.50 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING rpm: 1250 1st speed Rack travel in mm : 12.00...12.10 Del.quantity cm3/: 12.1...12.3 100 s: (11.9...12.5) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 400.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 : 121.0...123.0 Speed Del.quantity 1000 : (119.0...125.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 48...56 Testing:

1st rack travel in: 11.00 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1355...1385 Speed 3rd rack travel in: 4.00 Speed rpm : 1360...1390 4th rack travel in: 1450 Speed rpm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 26...34 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rom : 400 Rack travel in mm : 5.80...6.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 12.00...12.10 2nd speed rpm: : 750 Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS 1st version : 750 Speed rpm Del.quantity cm3/: 122.0...126.0 1000 s: (120.0...128.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1290...1300 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Adjust stop Lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet : CUM 8,3 a22 Edition : 17.05.90 Replaces : 2.5.89 Test oil : ISO-4113

: 9 400 230 08900 Combination no.

Injection pump

Pump designation: PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

: 3911962 Cust. part no.

Customer-spec. information Customer : C.D.C.

Engine : 6 CTA 8.31tr

: 174.5 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 12.6...12.8

100 s: (12.4...13.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm: 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3 Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 126.5...128.5 Del.quantity 1000 : (124.5...130.5)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testina:

1st rack travel in: 11.70 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1200...1230 Speed 3rd rack travel in: 4.00 rpm : 1205...1235 Speed 4th rack travel in: 1300 Speed rom : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 20...28 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.70 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a23 Test sheet : 17.05.90 Edition : 2.5.89 Replaces : ISO-4113 Test oil

Combination no. : 9 400 230 08900

Injection pump

Pump designation : PES6A1000320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1000A0C2190

Cust. part no. : 3908566

Customer-spec. information Customer : C.D.C.

: 6 CTA 8.3 Engine

: 171.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Openina .

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rom : 1000

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 13.1...13.3

100 s: (12.9...13.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in am: 5.5...5.7 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

: 131.0...133.0 Del.quantity

: (129.0...135.0) : 3.50 1000

cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 12.20 rpm : 1050...1060 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 3rd rack travel in: 4.00 rpm : 1135...1165 Speed 4th rack travel in: 1150 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.1 Testina: : 100 Speed man Minimum rack trave: 19.00 : 400 rpm Rack travel in mm : 5.50...5.70 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.20 Speed rpm : 1050...1060 STARTING FUEL DELIVERY : 100 Speed rpm Del. quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE : 400 Speed rpm Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5) Spread cm3 : 3.501000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a25 Test sheet Edition : 17.05.90 Replaces : 2.5.89 : ISO-4113 Test oil

Combination no. : 9 400 230 089CF

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

: 3911543 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 CT. 8.3 ltr. Engine

: 138.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm : 11001st speed

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm: 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 106.5...108.5 Del.quantity 1000 : (104.5...110.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.40 rpm : 1140...1150 2nd rack travel in: 4.00 rpm : 1215...1245 Speed 3rd rack travel in: 4.00 Speed rpm : 1215...1245 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 27...35 Setting point w/out bumper spring : 400 **LDW** Rack travel in mm: 5.5 Testing:

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.40...11.50
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 750 Del.quantity cm3/ : 125.0...129.0 1000 s: (123.0...131.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40 Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

K27

Note remarks

Test sheet : CUM 8,3 a26 Edition : 17.05.90 Replaces : 2.5.89 Test oil : ISO-4113

Combination no. : 9 400 230 0890G

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design: : RSV400...1000A0C2190

Cust. part no. : 3911544

Customer spec. information Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 127.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

EASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 10.0...10.2

100 s: (9.8...10.4)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1000

Del.quantity : 100.0...102.0 1000 : (98.0...104.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 38...46

Testing:

1st rack travel in: 10.10

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1080...1110 Speed

3rd rack travel in: 4.00

rpm : 1080...1110 Speed

4th rack travel in: 1150

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 21...29

Setting point w/out bumper spring

rom : 400 Rack travel in mm: 5.4

Testing:

: 100 Speed rom Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 11.10...11.20

2nd speed rpm : 750

Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 111.5...115.5 1000 s: (109.5...117.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del quantity cm3/: 135.0...155.0

100) s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 460 Speed

Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 : (2.75...2.95) Prestroke mm Note remarks Rack travel in mm : 10.50 : 1-5-3-6-2-4 Test sheet : CUM 8,3 a27 Firing order Edition : 17.05.90 : 2.5.89 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 9 400 230 089CH Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6A100D320/3RS2691 Time to cyl. no. : 1 EP type number : 9 410 230 025 Governor BASIC SETTING Governor design. : RSV400...1050A0C2190 rpm: 1050 1st speed Cust. part no. : 3912920 Rack travel in mm : 11.10...11.20 Customer-spec. information Del.quantity cm3/: 10.1...10.3 Customer : C.D.C. 100 s: (9.9...10.5) : 6 C 8.3 Engine cm3 : 0.3: 131.0 1st version kW Spread Rated speed : 2100 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 400.0Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.4...1.8 100 s: (1.1...2.0) Test oil inlet temp. °C : 38...42 cm3 : 0.3Overflow valve Spread : 1 417 413 047 100 s: (0.5) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Test nozzle holder Degree: -3 rpm : 800 : 1 688 901 017 assembly Speed Rack travel in mm : 0.30...0.70 Opening : 207...210 Governor spring pre-tension pressure, bar Click setting x : ?Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0,6 1st version rpm : 1050 Test lines : 1 680 750 014 Speed : 101.5...103.5 Del.quantity : (99.5...105.5) 1000 Outside diameter : 3.50 x Wall thickness Spread Ciris 1000 : 6.00x2.00x600 : (6.00) x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant.

Control lever

Testing:

position degrees: 44...52

L₀₂

per values

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

1st rack travel in: 10.10

Speed rpm : 1090...1100

2nd rack travel in: 4.00

rpm : 1145...1175 Speed

3rd rack travel in: 4.00

rpm : 1145...1175 Speed

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 26...34

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.1

Testing:

Speed : 100 rpm Minimum rack trave: 19.00 : 400 Speed rpm

Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version

1st speed

st speed rpm : 1050
Rack travel in m: 11.10...11.20

rpm : 750 2nd speed

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 119.5...123.5

1000 s: (117.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm:: 400 Rack travel in mm: 5.50...5.70 Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm

before stop.

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Note remarks

: CUM 8,3 a28 : 17.05.90 Test sheet Edition : 2.5.89 Replaces Test oil : ISO-4113

: 9 400 230 089CI Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV500...1050A0c2190

Cust. part no. : 3911971

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

: 123.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 10501st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0,6)

2nd speed rpm : 500.0 Rack travel in mm : 5.5...5.7

Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 96.5...98.5 Del.quantity 1000 : (94.5...100.5)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

L04

1st rack travel in: 9.70 rpm : 1095...1105 Speed 2nd rack travel in: 4.00 : 1195...1225 Speed rpm 3rd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1250 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 35...44 Setting point w/out bumper spring : 500 rpm Rack travel in mm: 5.1 Testing: rpm : 100 Speed Minimum rack trave: 19.00 : 500 rom Rack travel in mm : 5.50...5.70 TORQUE CONTROL Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 10.70...10.80 2nd speed rpm : 750 Rack travel in m: 12.20...12.40 FUEL DELIVERY CHARACTERISTICS 1st version : 750 Speed rpm Del.quantity cm3/: 116.0...120.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70 rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 500 Speed Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

Test sheet : CUM 8,3 a29 Edition : 17.05.90 Replaces : 2.5.89 Test oil : ISO-4113

: 9 400 230 089cJ Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1050A0C2190

: 3914700 Cust. part no.

Customer-spec. information : C.D.C. Customer

: 6 C 8.3 Engine

: 131.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.4...1.8

100 s: (1.1...2.0)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 101.5...103.5 Del.quantity 1000 : (99.5...105.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 44...52

Testina:

L06

1st rack travel in: 10.10 rpm : 1090...1100 Speed

2nd rack travel in: 4.00

: 1145...1175 Speed rpm

3rd rack travel in: 4.00

: 1145...1175 Speed mqn

4th rack travel in: 1250

rom : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 26...34

Setting point w/out bumper spring

: 400 rpm Rack travel in mm: 5.1

Testing:

Speed : 100 rpm Minimum rack trave: 19.00 : 400 rpm

Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 11.10...11.20

2nd speed rpm : 750

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 119.5...123.5 1000 s: (117.5...125.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

Test sheet : CUM 8,3 a30 Edition : 17.05.90 Replaces : 2.5.89

Test oil : ISO-4113

Combination no. : 9 400 230 0890K

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1250A0C2190

Cust. part no. : 3914699

Customer—spec. information Customer : C.D.C.

Engine : 6 CT 8.3 Ltr

1st version kW : 160.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 12.1...12.3

100 s: (11.9...12.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1250

Del.quantity : 121.0...123.0

1000 : (119.0...125.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

L08

1st rack travel in: 11.00 Speed rpm : 1290...1300 2nd rack travel in: 4.00 rpm : 1355...1385 Speed 3rd rack travel in: 4.00 rpm : 1360...1390 Speed 4th rack travel in: 1450 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 26...34 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.80...6.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 12.00...12.10 2nd speed rpm : 750 Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS 1st version : 750 Speed rpm Del.quantity cm3/: 122.0...126.0 1000 s: (120.0...128.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Start-of-delivery mark 11" cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

Test sheet : CUM 8,3 a31 Edition : 17.05.90 : 2.5.89 Replaces : ISO-4113 Test oil

: 9 400 230 089CL Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV500...1050A0C2190

: 3914171 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

: 123.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Openina .

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90

: (2.75...2.95) Rack travel in mm : 10.50...10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10.70...10.80

Del.guantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 500.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1050 Speed

: 96.5...98.5 Del.quantity 1000 : (94.5...100.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testina:

1st rack travel in: 9.70 Speed rpm : 1095...1105

2nd rack travel in: 4.00

rpm : 1195...1225 Speed

3rd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 35...44

Setting point w/out bumper spring

rpm Rack travel in mm: 5.1

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 500 Speed

Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve 1st version

1st speed rpm : 1050

Rack travel in m: 10.70...10.80 and speed rpm : 750 Rack travel in m: 12.20...12.40

2nd speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 116.0...120.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500

Rack travel in mm : 5.50...5.70

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a32 : 17.05.90 Edition : 2.5.89 Replaces Test oil : ISO-4113 Combination no. : 9 400 230 089cm Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1100A0C2190 Cust. part no. : 3912535 Customer-spec. information Customer : C.D.C. : 6 C 8.3 Engine 1st version kW : 133.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening | : 207...210 pressure, bar Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

: 2.80...2.90 : (2.75...2.95) Prestroke mm Rack travel in mm: 10.50 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1100 1st speed Rack travel in mm : 11.30...11.40 Del.quantity cm3/: 10.1...10.3 100 s: (9.9...10.5) Spread cm3 : 0.3100 s: (0.6) rpm : 400.02nd speed Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.2...1.6 100 s: (0.9...1.8) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 Del.quantity : 101.0...103.0 1000 : (99.0...105.0) : 3.50 Spread cm3 : (6.00) RATED SPEED 1st version Control lever position degrees: 50...58

Testing:

Test pressure, bar: 27...29

L12

1st rack travel in: 10.30

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1210...1240

3rd rack travel in: 4.00

: 1210...1240 Speed rom

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 30...38

Setting point w/out bumper spring

rpm : 400 Speed Rack travel in mm: 5.1

Testing:

: 100 Speed L'DW Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.30...11.40

rpm : 750 2nd speed

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 116.5...120.5

1000 s: (114.5...122.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 400 Rack travel in mm : 5.50...5.70 Del.quantity cm3/ : 12.0...16.0 1000 s: (9.5...18.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm

before stop.

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control spring retainer.

L13

Note remarks

: CUM 8,3 a33 : 17.05.90 : 2.5.89 Test sheet Edition Replaces

: ISO-4113 Test oil

Combination no. : 9 400 230 0890N

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1050A0C2190

: 3908565 Cust. part no.

Customer—spec. information : C.D.C. Customer

: 6 C 8.3 Engine

1st version kW : 174.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

: 0.50 (0.75) Tolerance + - °

Time to cyl. no.

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 12.9...13.1

100 s: (12.7...13.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 129.0...131.0 Del.quantity 1000 : (127.0...133.0)

: 3.50 : (6.00) Spread cm3

1000

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testina:

1st rack travel in: 11.90 rpm : 1095...1105 Speed 2nd rack travel in: 4.00 Speed rpm : 1170...1200 3rd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1250 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 5.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.90 rpm : 1095...1105 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet : CUM 8,3 a34 Edition : 17.05.90 : 2.5.89 Replaces Test oil : ISO-4113

Combination no. : 9 400 230 08900

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

: 3915961 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

: 126.8 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm : 11001st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm: 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 96.5...98.5 Del.quantity

1000 : (94.5...100.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 9.70

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1200...1230 Speed

3rd rack travel in: 4.00

rpm : 1200...1230 Speed

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control Lever

position degrees: 27...35

Setting point w/out bumper spring

: 400 **MC1** Rack travel in mm: 5.4

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve – 1st version

1st speed rpm : 1100

2nd speed

Rack travel in m: 10.70...10.80 od speed rpm : 750 Rack travel in m: 12.30...12.50

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm

before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

: CUM 8,3 a35 Test sheet Edition : 17.05.90 : 2.5.89 Replaces Test oil : ISO-4113

: 9 400 230 089CP Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1000A0C2190

Cust. part no. : 3915949

Customer-spec. information Customer : C.D.C.

: 6 CTA 8.3 Engine

: 171.0 1st version kW Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 13.20...13.30

Del.guantity cm3/: 13.1...13.3

100 s: (12.9...13.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.4...1.8

100 s: (1.1...2.0)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

: 131.0...133.0 Del.quantity 1000 : (129.0...135.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

L18

1st rack travel in: 12.20 rpm : 1050...1060 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 3rd rack travel in: 4.00 Speed rpm : 1135...1165 4th rack travel in: 1150 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.1 Testing: Speed : 100 nom Minimum rack trave: 19.00 : 400 Speed ripm Rack travel in mm : 5.50...5.70 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.20 rpm : 1050...1060 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.50...5.70 Del.quantity cm3/ : 14.0...18.0 1000 s: (11.5...20.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet : CUM 8,3 a36 : 17.05.90 Edition : 2.5.89 Replaces

: ISO-4113 Test oil

Combination no. : 9 400 230 0890Q

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

: RSV400...1100A0c2190 Governor design.

: 3915965 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 CTA 8.3 Ltr. Engine

1st version kW : 157.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening 1

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 11.1...11.3

100 s: (10.9...11.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm: 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 111.0...113.0 Del.quantity 1000 : (109.0...115.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 11.00

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1190...1220 Speed

3rd rack travel in: 4.00

rpm : 1190...1220 Speed

4th rack travel in: 1300

rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 23...31

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.5

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.00...12.10 and speed rpm : 750

2nd speed rpm

Rack travel in m: 13.30...13.50

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 130.5...134.5 1000 s: (128.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

Test sheet : CUM 8,3 a37 Edition : 17.05.90 : 2.5.89 Replaces : ISO-4113 Test oil

Combination no. : 9 400 230 089CR

Injection pump

Pump designation : PES6A100D32D/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

: 3915952 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 CT. 8.3 ltr. Engine

1st version kW : 138.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 106.5...108.5 Del.quantity

1000 : (104.5...110.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.40

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

: 1215...1245 Speed rpm

3rd rack travel in: 4.00

: 1215...1245 Speed rpm

4th rack travel in: 1300

Speed : 0.30...1.40 rom

LOW IDLE 1 Control lever

position degrees: 27...35

Setting point w/out bumper spring

: 400 rpm Rack travel in mm: 5.5

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 : 400 rom

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 11.40...11.50

2nd speed rpm : 750

Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rom

Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

Test sheet : CUM 8,3 a38 Edition : 17.05.90 Replaces : 2.5.89 Test oil : ISO-4113

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Combination no. : 9 400 230 0890S

Governor

Governor design. : RSV400...1000A0C2190

: 3915953 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

: 127.0 1st version kW Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 10.0...10.2

100 s: (9.8...10.4)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 100.0...102.0 Del.quantity 1000 : (98.0...104.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 10.10

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1080...1110 Speed

3rd rack travel in: 4.00

rpm : 1080...1110 Speed

4th rack travel in: 1150

rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 21...29

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.4

Testina:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1000 1st speed

Rack travel in m: 11.10...11.20 and speed rpm : 750

2nd speed rpm

Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 111.5...115.5 1000 s: (109.5...117.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

: CUM 8,3 a39 : 17.05.90 Test sheet Edition : 2.5.89 Replaces Test oil : ISO-4113

: 9 400 230 089CT Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1250A0C2190

: 3915979 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 CT 8.3 ltr Engine

1st version kW : 160.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 12.1...12.3

100 s: (11.9...12.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm: 5.8...6.0

Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 121.0...123.0 Del.quantity 1000 : (119.0...125.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 11.00 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1355...1385 Speed 3rd rack travel in: 4.00 Speed rpm : 1360...1390 4th rack travel in: 1450 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 26...34 Setting point w/out bumper spring rpm : 400 Rack travel in mm : 5.4 Testina: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.80...6.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 12.00...12.10 ad speed rpm : 750 2nd speed Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/: 122.0...126.0 1000 s: (120.0...128.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1290...1300 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE

rpm : 400

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Speed

Note remarks

: CUM 8,3 a40 Test sheet Edition : 17.05.90 : 2.5.89 Replaces

Test oil : ISO-4113

: 9 400 230 089cu Combination no.

Injection pump

Pump designation: PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV500...1050A0C2190

Cust. part no. : 3915689

Customer-spec. information Customer : C.D.C.

: 6 5 8.3 Engine

: 123.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening 1

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 10501st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 500.02nd speed

Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 96.5...98.5 1000 : (94.5...100.5) Del.quantity

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testina:

1st rack travel in: 9.70 Speed rpm : 1095...1105 2nd rack travel in: 4.00 rpm : 1195...1225 Speed 3rd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1250 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 35...44 Setting point w/out bumper spring : 500 rpm Rack travel in mm: 5.1 Testing: Speed rpm : 100 Minimum rack trave: 19.00 : 500 rom Rack travel in mm : 5.50...5.70 TORQUE CONTROL rom : 1050 1st speed

Torque control curve - 1st version Rack travel in m: 10.70...10.80 2nd speed rpm : 750 Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version rpm : 750 Speed Del.quantity cm3/: 116.0...120.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70 rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm: 500 Rack travel in mm: 5.50...5.70 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

MO1

Note remarks

: CUM 8,3 j 2 : 17.05.90 Test sheet Edition : 28.9.89 Replaces

: ISO-4113 Test oil

Combination no. : 9 400 230 0960A

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

: RSV425...900A4C2213 Governor design.

: 3908845 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6CT-I Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 14.2...14.4

100 s: (14.0...14.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 425.0 2nd speed Rack travel in mm: 6.0...6.2

Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

: 142.5...144.5 Del.quantity 1000 : (140.5...146.5)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testing:

1st rack travel in: 13.00 Speed rpm : 795...805

2nd rack travel in: 4.00

rpm : 825...855 Speed 3rd rack travel in: 4.00 rpm : 830...860 Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring rpm : 425 Speed Rack travel in mm : 5.6 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 425 Speed Rack travel in mm : 6.00...6.20 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.00 rpm : 795...805 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 425 Speed Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) cm3 : 3.50 1000 s: (5.50) Spread Remarks: Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1 Adjust stop lever to 0.5...1.0 mm before stop.

APPLICATION

Generator

Note remarks

: CUM 8,3 a12 Test sheet Edition : 08.06.90 : 1.2.90 Replaces Test oil : ISO-4113

: 9 400 230 097 Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

-8R

: 9 420 234 137 Governer no.

Customer—spec. information Customer : C.D.C.

: 6 CT 8.3 Engine

1st version kW : 156.6 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina (

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50 ___

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 12.2...12.4

100 s: (12.0...12.6)

cm3 : 0.4Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

: 122.5...124.5 Del.quantity

1000 : (120.5...126.5)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

MO4

1st rack travel in: 11.30 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 3rd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 5.2 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 5.60...5.80 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.30 rpm : 1140...1150 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 6.00Spread 1000 s: (8.00) Remarks: : C.D.C. # 3915959 Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10° cam

rotation angle after start of delivery,

cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM_8,3 a59 Test sheet : 17.05.90 Edition : 2.5.89 Replaces : ISO-4113 Test oil Combination no. : 9 400 230 097BA Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1000A0C2190 : 9 420 234 Governer no.

: 3911956 Cust. part no.

Customer-spec. information Customer : C.D.C.

Engine : 6 CT 8.3

: 151.4 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 11.9...12.1

100 s: (11.7...12.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : ?.

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 119.0...121.0 : (117.0...123.0) Del.quantity 1000

cm3 : 3.50Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 34...42

Testing:

1st rack travel in: 11.10

rpm : 1040...1050 Speed

2nd rack travel in: 4.00 rpm : 1075...1105 Speed 3rd rack travel in: 4.00 rpm : 1080...1110 Speed 4th rack travel in: 1150 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring npm : 400 Rack travel in mm: 5.2 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 peed rpm : 1040...1050 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a44 : 17.05.90 Test sheet Edition Replaces : 2.5.89 Test oil : ISO-4113 Combination no. : 9 400 230 097BB Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1050A0C2190 : 9 420 234 Governer no. : 3913289 Cust. part no. Customer-spec. information Customer : C.D.C. : 6 0 8.3 Engine : 148.0 1st version kW : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 2.80...2.90 : (2.75...2.95) Prestroke mm Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm : 10501st speed Rack travel in mm : 12.40...12.50 Del.quantity cm3/: 12.2...12.4 100 s: (12.0...12.6) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.02nd speed Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed : 122.0...124.0 Del.quantity 1000 : (120.0...126.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 43...51

Test pressure, bar: 27...29

Testing:

1st rack travel in: 11.40

Speed rpm : 1090...1100

2nd rack travel in: 4.00

rpm : 1135...1165 Speed

3rd rack travel in: 4.00

rpm : 1135...1165 Speed

4th rack travel in: 1250

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 23...31

Setting point w/out bumper spring

rpm : 400

Rack travel in mm: 4.9

Testing:

rpm : 100 Speed

Minimum rack trave: 19.00

rpm : 400

Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.40...12.50 2nd speed rpm : 750

Rack travel in m: 13.70...13.90

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 141.0...145.0 1000 s: (139.0...147.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm: 400 Rack travel in mm: 5.30...5.50

Del.quantity cm3/: 14.0...18.0

1000 s: (11.5...20.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm

before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Start-of-delivery mark at 10° cam rotation angle after start of delivery,

cylinder 1

Note remarks

: CUM 8,3 a45 : 17.05.90 Test sheet Edition : 2.5.89 Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 097BC

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

: RSV400...1100A0c2190 Governor design.

: 0 420 233 Governer no.

: 3914056 Cust. part no.

Customer-spec. information : C.D.C. Customer

: 6 CT 8.3 Engine

: 156.6 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 12.2...12.4

100 s: (12.0...12.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.6...5.8

Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 122.5...124.5 : (120.5...126.5) Del.quantity 1000

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing: 1st rack travel in: 11.30 Speed rpm : 1145...1155 2nd rack travel in: 4.00 rpm : 1240...1270 Speed 3rd rack travel in: 4.00 rpm : 1240...1270 Speed 4th rack travel in: 1300 Speed rom : 0.30...1.40LOW IDLE 1 Control lever position degrees: 28...36 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.2 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.30 rpm : 1145...1155 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed : 400 rom Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS
Note remarks

Test sheet : CUM 8,3 a46 Edition : 17.05.90 Replaces : 2.5.89 Test oil : ISO-4113

Combination no. : 9 400 230 09780

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1000A0c2190

Governer no. : 9 420 234

Cust. part no. : 3915963

Customer—spec. information Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 151.4 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 11.9...12.1

100 s: (11.7...12.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm: 400.0

Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1000

Del.quantity : 119.0...121.0

1000 : (117.0...123.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 34...42

Testing: 1st rack travel in: 11.10 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1075...1105 Speed 3rd rack travel in: 4.00 Speed rpm : 1080...1110 4th rack travel in: 1150 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 17...25 Setting point w/out bumper spring rpm : 400° Rack travel in mm: 5.2 Testing: : 100 Speed נואט Minimum rack trave: 19.00 : 400 Speed rpm Rack travel in mm : 5.60...5.80 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 Speed rpm : 1040...1050 STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10° cam rotation angle after start of delivery,

cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a47 : 17.05.90 Test sheet Edition : 2.5.89 Replaces Test oil : ISO-4113 Combination no. : 9 400 230 097BE Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1050A0C2190 : 9 420 234 Governer no. : 3915976 Cust. part no. Customer-spec. information Customer : C.D.C. : 6 C 8.3 Engine : 148.0 1st version kW Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values ___ BEGINNING OF DELIVERY

Test pressure, bar: 27...29 Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1050 Rack travel in mm : 12.40...12.50 Del.quantity cm3/: 12.2...12.4 100 s: (12.0...12.6) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ?FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050 : 122.0...124.0 Del.quantity 1000 : (120.0...126.0) : 3.50 Spread cm3 1000 : (6.00)RATED SPEED 1st version Control lever position degrees: 43...51

Testing:

1st rack travel in: 11.40 Speed rpm : 1090...1100

2nd rack travel in: 4.00

rpm : 1135...1165 Speed

3rd rack travel in: 4.00

rpm : 1135...1165 Speed

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 23...31

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.9

Testina:

: 100 Speed ngn

Minimum rack trave: 19.00

rpm : 400 Speed

Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.40...12.50 2nd speed rpm : 750

Rack travel in m: 13.70...13.90

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 141.0...145.0 1000 s: (139.0...147.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100 beea

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.30...5.50

Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm

before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Start-of-delivery mark at 10° cam rotation angle after start of delivery,

cylinder 1

M15

Note remarks

: CUM 8,3 a48 Test sheet : 17.05.90 Edition : 2.5.89 Replaces : ISO-4113 Test oil

Combination no. : 9 400 230 099AA

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

Cust. part no. : 3911948

Customer-spec. information : C.D.C. Customer

: 6 C 8.3 Engine

: 111.9 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 11.30...11.40

Del.guantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 105.5...107.5 Del.quantity

1000 : (103.5...109.5)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.30 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1195...1225 Speed 3rd rack travel in: 4.00 rpm : 1205...1235 Speed 4th rack travel in: 1250 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.30 Speed rpm : 1140...1150 STARTING FUEL DELIVERY Speed : 100 rom Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a49 : 17.05.90 Test sheet Edition : 2.5.89 Replaces Test oil : ISO-4113

: 9 400 230 099AB Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1000A0C2190

: 3911951 Cust. part no.

Customer-spec. information : C.D.C. Customer

: 6 C 8.3 Engine

1st version kW : 105.9 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no.

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed : 1000 rpm

: 98.5...100.5 Deliquantity : (96.5...102.5) 1000

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 36...44

Testing:

1st rack travel in: 9.80 Speed rpm : 1040...1050 2nd rack travel in: 4.00 rpm : 1085...1115 Speed 3rd rack travel in: 4.00 : 1090...1120 Speed rpm 4th rack travel in: 1200 Speed mogn : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 5.4 Testing: : 100 Speed rpm Minimum rack trave: 19.00 : 400 Speed rpm Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.80 rpm : 1040...1050 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a50 Test sheet Edition : 17.05.90 Replaces : 2.5.89

Test oil : ISO-4113

Combination no. : 9 400 230 099AC

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1250A0C2190

: 3911947 Cust. part no.

Customer-spec. information : C.D.C. Customer

: 6 C 8.3 Engine

: 119.3 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 1250

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm: 5.6...5.8 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

: 106.0...108.0 Del.quantity 1000 : (104.0...110.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 51...59

1st rack travel in: 10.30 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1355...1385 Speed 3rd rack travel in: 4.00 Speed rpm : 1355...1385 4th rack travel in: 1450 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 27...35 Setting point w/out bumper spring : 400 rpm Rack travel in mm : 5.2 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.30 rpm : 1290...1300 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE : 400 Speed rpm Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet Edition

: CUM 8,3 a51 : 17.05.90 : 2.5.89

Replaces Test oil

: ISO-4113

Combination no. : 9 400 230 099AD

Injection pump

EP type number

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025

Governor

Governor design. : RSV400...1100A0c2190

Cust. part no. : 3911949

Customer-spec. information Customer

: C.D.C.

Engine

: 6 C 8.3

1st version kW Rated speed

: 98.4 : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 017

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2,00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm

: (2.75...2.95) Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed

rpm : 400.0

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread

cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 45...54

1st rack travel in: 9.00

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1180...1210 Speed

3rd rack travel in: 4.00

rpm : 1185...1215 Speed

4th rack travel in: 1250

rom: 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 26...34

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 5.4

Testing:

: 100 Speed rom Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 10.00...10.10

2nd speed rpm : 800

Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm3/: 92.0...96.0 1000 s: (90.0...98.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.00

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5)

M23

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet Edition : CUM 8,3 a52 : 17.05.90 : 2.5.89 Replaces : ISO-4113 Test oil

Combination no. : 9 400 230 099AE

Injection pump

Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1050A0C2190

: 3911950 Cust. part no.

Customer-spec. information : C.D.C. Customer

: 6 0 8.3 Engine

: 109.6 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 1050

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 10.8...11.0

100 s: (10.6...11.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0

Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

: 1050 Speed rpm

Del.quantity : 108.5....112.5)

: 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 41...49

1st rack travel in: 10.40 Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1140...1170 Speed 3rd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1200 rom : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.4 Testing: Speed : 100 rpm Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a53 : 17.05.90 Edition : 2.5.89 Replaces Test oil : ISO-4113 : 9 400 230 099AF Combination no. Injection pump Pump designation : PES6A1000320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1100A0C2190 : 3915955 Cust. part no. Customer-spec. information Customer : C.D.C. : 6 C 8.3 Engine : 111.9 : 2200 1st version kW Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Openina : 207...210 pressure, bar Orifice plate diameter mm : 0.6 Test lines : 1 680 750 014

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ______

BEGINNING OF DELIVERY Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm: 400.0 Rack travel in mm: 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 105.5...107.5 1000 : (103.5...109.5)

cm3 : 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version Control lever

position degrees: 42...50

1st rack travel in: 10.30 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1195...1225 Speed 3rd rack travel in: 4.00 rpm : 1205...1235 Speed 4th rack travel in: 1250 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.4 Testina: : 100 Speed rom Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.30 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed : 100 TOM: Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet : CUM 8,3 a54
Edition : 17.05.90
Replaces : 2.5.89
Test oil : ISO-4113

Combination no. : 9 400 230 099AG

Injection pump

Pump designation : PES6A1000320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1000ADC2190

Cust. part no. : 3915958

Customer—spec. information Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 105.9 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1000

Del.quantity : 98.5...100.5 1000 : (96.5...102.5)

cm3 : 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version Control lever

position degrees: 36...44

1st rack travel in: 9.80 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1085...1115 Speed 3rd rack travel in: 4.00 rpm : 1090...1120 Speed 4th rack travel in: 1200 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: : 100 Speed rpm Minimum rack trave: 19.00 : 400 rpm Speed Rack travel in mm : 5.80...6.00 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.80 rpm : 1040...1050 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 4.00 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a55 : 17.05.90 Test sheet Edition Replaces : 2.5.89 Test oil : ISO-4113 : 9 400 230 099AH Combination no. Injection pump Pump designation : PES6A1000320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1250A0C2190 : 3915954 Cust. part no. Customer-spec. information : C.D.C. Customer : 6 0 8.3 Engine : 119.3 1st version kW : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Opening. : 207...210 pressure, bar Orifice plate diameter mm : 0,6 : 1 680 750 014 Test lines Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1250 1st speed Rack travel in mm : 11.30...11.40 Del.guantity cm3/: 10.6...10.8 100 s: (10.4...11.0) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 400.0 Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ?FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 Speed : 106.0...108.0 Del.quantity 1000 : (104.0...110.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 51...59

1st rack travel in: 10.30 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1355...1385 Speed 3rd rack travel in: 4.00 Speed rpm: 1355...1385 4th rack travel in: 1450 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 27...35 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.2 Testing: Speed : 100 rpm Minimum rack trave: 19.00 Speed rom : 400 Rack travel in mm : 5.60...5.80 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.30 rpm : 1290...1300 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet : CUM 8,3 a56 : 17.05.90 Edition : 2.5.89 Replaces Test oil : ISO-4113

: 9 400 230 099AI Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

: 3915956 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

: 98.4 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3 Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 88.0...90.0 Del.quantity 1000 : (85.0...92.0)

: 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 45...54

Testing:

NO4

1st rack travel in: 9.00

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1180...1210 Speed

3rd rack travel in: 4.00

rpm : 1185...1215 Speed

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 26...34

Setting point w/out bumper spring

: 400 rom Rack travel in mm: 5.4

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.00...10.10

: 800 2nd speed rpm

Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

: 800 Speed rpm

Del.quantity cm3/: 92.0...96.0 1000 s: (90.0...98.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

Spread

cm3 : 3.50

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm

before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

N05

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a57 : 17.05.90 Test sheet Edition : 2.5.89 Replaces : ISO-4113 Test oil Combination no. : 9 400 230 099AJ Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1050A0c2190 Cust. part no. : 3915957 Customer-spec. information Customer : C.D.C. Engine : 6 C 8.3 1st version kW : 109.6 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Openina . : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm: 10.50 : 1-5- 3- 6- 2- 4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1050Rack travel in mm : 11.40...11.50 Del.quantity cm3/: 10.8...11.0 100 s: (10.6...11.2) Spread cm3 : 0.3100 s: (0.6) rpm : 400.02nd speed Rack travel in mm: 5.8...6.0 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 100 s: (0.5) Spread GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050 Del.quantity : 108.5...110.5 : (106.5...112.5) 1000 cm3 : 3.50 1000 : (6.00) Spread RATED SPEED 1st version Control lever

position degrees: 41...49

Testing:

BEGINNING OF DELIVERY

per values ___

Test pressure, bar: 27...29

Insp. values in parentheses Set equal delivery quant.

1st rack travel in: 10.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1140...1170 Speed 3rd rack travel in: 4.00 Speed rpm : 1150...1180 4th rack travel in: 1200 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: : 100 Speed rom Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full lead rack tr: 10.40 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 : (2.75...2.95) Prestroke mm Note remarks Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 : CUM 8,3 k : 08.06.90 Test sheet Edition : 1.2.90 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 9 400 230 102 : 0.50 (0.75) Tolerance + - ° Injection pump Pump designation : PES6A100D320/3RS2691 Time to cyl. no. : 1 EP type number : 9 410 230 025 BASIC SETTING Governor : RSV400...1050A0c2216 Governor design. rpm: 1050 1st speed : 9 420 234 146 Governer no. Rack travel in mm : 11.10...11.20 Customer—spec. information Del.quantity cm3/: 10.0...10.2 : C.D.C. Customer 100 s: (9.8...10.4) : 6 CTA 8.3 Engine : 141.7 cm3 : 0.41st version kW Spread Rated speed : 2100 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 400.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.8...2.2 Test oil inlet temp. °C : 38...42 100 s: (1.5...2.4) Overflow valve Spread cm3 : 0.6: 1 417 413 047 100 s: (0.8) GUIDE SLEEVE POSITION Inter press., bar: 1.50 Control-lever position Test nozzle holder Degree: -3 : 1 688 901 017 rpm : 800 assembly Speed Rack travel in mm : 0.30...0.70 Opening : 207...210 Governor spring pre-tension pressure, bar Click setting x : ?Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0,6 1st version rpm : 1050 Test lines : 1 680 750 014 Speed Del.quantity 1000 Outside diameter Spread : 4.00 x Wall thickness cm3 : (6.50) : 6.00X2.00X600 1000 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 100.5...102.5 : (98.5...104.5) 1st version Control lever position degrees: 43...51 Testing:

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

1st rack travel in: 10.10

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1160...1190 Speed

3rd rack travel in: 4.00

rpm : 1160...1190 Speed

4th rack travel in: 1250

rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 25...34

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.5

Testina:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.90...6.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.10...11.20 nd speed rpm : 750

2nd speed

Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 126.0...130.0 1000 s: (124.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: C.D.C. # 3915968

Adjust stop lever to 0.5...1.0 mm

before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.80...2.90 : (2.75...2.95) Note remarks Rack travel in mm : 10.50 : CUM 8,3 b 3 : 08.06.90 : 1-5-3-6-2-4 Test sheet Firing order Edition Replaces : 1.2.90 Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 9 400 230 107 : 0.50 (0.75) Tolerance + - ° Injection pump Pump designation : PES6A100D320/3RS2691 Time to cyl. no. : 1 EP type number : 9 410 230 028 BASIC SETTING Governor Governor design. : RQV350...1200AB1233R 1st speed rpm: 1200 : 9 420 231 018 Governer no. Rack travel in mm : 10.80...10.90 Customer-spec. information Del.quantity cm3/: 11.3...11.5 Customer : C.D.C 100 s: (11.1...11.7) : 6CT830 Engine cm3 : 0.41st version kW : 157.0 Spread : 2400 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.02nd speed Rack travel in mm : 4.6...4.8 Test oil Del.quantity cm3/: 1.6...2.0 inlet temp. °C : 38...42 100 s: (1.3...2.2) Overflow valve Spread cm3 : 0.6: 1 417 413 047 100 s: (0.8) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 017 GUIDE SLEEVE TRAVEL assembly rpm : 250 1st speed Opening travel mm : 0.00...0.20 : 207...210 rpm : 350 pressure, bar 2nd speed : 1.00...1.50 travel mm rpm : 450 3rd speed Orifice plate : 1.90...2.40 diameter mm : 0,6 travel mm rpm : 1200 4th speed : 6.90...6.90 travel mm rpm : 1350 Test lines : 1 680 750 014 5th speed : 8.15...8.65 travel mm x Wall thickness GUIDE SLEEVE POSITION : 6.00X2.00X600 Control-lever position x Length mm Degree: -1 rpm : 1435 (A) Injection pump setting values Speed

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Outside diameter

Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Aneroid pressure h: 700 Del.quantity : 113.0...115.0

1000 : (111.0...117.0)

cm3 : 4.00Spread

1000 : (6.50)

RATED SPEED

1st version Control lever

position degrees: 40...46

Testing:

1st rack travel in: 9.80

rpm : 1240...1250 Speed

2nd rack travel in: 4.00

rpm : 1315...1345 Speed

4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 9...15

rpm : 350 Speed

Rack travel in mm : 4.60...4.80

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 240 Pressure

: 9.70...9.80 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 9.30...9.50

2nd pressure hPa : 333

Rack travel in m: 10.20...10.60

START CUT-OUT

1/min: 290 (300) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 84.5...88.5

1000 s: (82.5...90.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 150.0...170.0 1000 s: (145.0...175.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Remarks:

Speed rpm : 350 Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 6.001000 s: (8.00)

: C.D.C. # 3908558

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm

before stop.

Note remarks

: CUM 8,3 a61 : 08.08.90 Test sheet Edition : 1.2.90 Replaces : ISO-4113 Test oil

Combination no. : 9 400 230 110

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 030 EP type number

Governor

: RSV450...1100A0c2190 Governor design.

-42R

: 0 420 233 248 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6CT830

: 150.6 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 11.8...12.0

100 s: (11.6...12.2)

Spread cm3 : 0.4

100 s: (0.6)

100 s: (0.8)

2nd speed rpm : 450.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2)

Spread cm3 : 0.6

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 118.5...120.5 Del.quantity 1000 : (116.5...122.5)

: 4.00 Spread cm3

1000 : (6.50)

RATED SPEED

1st version Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.10

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1190...1220 Speed

3rd rack travel in: 4.00

Speed rpm : 1195...1225 4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control Lever

position degrees: 22...30

Setting point w/out bumper spring

rpm : 450 Speed

Rack travel in mm: 5.3

Testing:

: 100 Speed rpm

Minimum rack trave: 19.00

rpm : 450 Speed

Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 750

Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/: 133.0...137.0

1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 20.00...21.00

LOW IDLE

: 450 Speed rpm

Rack travel in mm : 5.70...5.90

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 6.00Spread

1000 s: (8.00)

Remarks:

: C.D.C # 3915685

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

: MAC 11,1 j8 Test sheet : 31.7.70 Edition

Replaces

Test oil : ISO-4113

: 9 400 231 201 Combination no.

Injection pump

Pump designation : PES6P120A720RS6016-1

EP type number : 9 410 231 034

Governor

Governor design. : RQV325...850PA737K

: 9 420 232 076 Governer no.

Cust. part no.

Customer-spec. information

Customer : MACK

: E6-300 4VH Engine

: 224.0 1st version kW : 1700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 0.2

Test nozzle holder

assembly

Opening

pressure, bar : 295...305

Test lines : 9 681 271 032

Outside diameter

x Wall thickness

: 6.35X1.70X840.0 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 2.95...3.05 Prestroke mm

: (2.90...3.10)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 850

Rack travel in mm: 13.40...13.50

Del.quantity cm3/: 18.3...18.5

100 s: (18.1...18.7)

Spread cm3 : 0.5

100 s: (0.75)

2nd speed rpm : 325

Rack travel in mm : 4.70...4.90

Del.quantity cm3/: 2.9...3.5 100 s: (2.7...3.7) Spread cm3 : 1.0

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

: 0.40...0.90 travel mm

rpm : 350 2nd speed

: 1.85...2.35 travel mm

3rd speed rpm : 450

: 2.90...3.40 travel mm

: 850 4th speed rpm

: 6.40...6.40 travel mm

: 1000 5th speed rom

: 8.10...8.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1070

Rack travel in mm: 9.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

: 183.5...185.5 Del.quantity

1000 : (181.5...187.5)

RATED SPEED

1st version

Control lever

position degrees: 54...60

Testing:

1st rack travel in: 12.40 Speed rpm : 890...900 2nd rack travel in: 4.00

rpm : 995...1025 Speed

4th rack travel in: 1050

rom : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 10...16

Testing:

: 250 Speed rpm Minimum rack trave: 6.60 Speed rom : 325

Rack travel in mm : 4.70...4.90

Rack travel in mm : 2.00

Speed rpm : 430...490

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

rpm : 850 1st speed

Rack travel in m: 13.40...13.50

rpm : 700 2nd speed

Rack travel in m: 13.80...13.90

rpm : 600 3rd speed

Rack travel in m: 14.25...14.35

rpm : 500 4th speed

Rack travel in m: 13.75...13.85

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 700 Speed

Del.quantity cm3/: -1000 s: (199.0...209.0)

Speed rpm : 600 Del.quantity cm3/: 217.0...226.0 1000 s: (215.0...228.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

rpm : 890...900 Speed

STARTING FUEL DELIVERY

: 100 Speed **LDW**

Del.quantity cm3/: 180.0...220.0

1000 s: (170.0...230.0)

Rack travel in mm : 11.60...11.80

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.70...4.90
Del.quantity cm3/: 29.0...35.0

1000 s: (27.0...37.0)

Remarks:

: MACK # 313 GC 5150P9

See VDT-I-MAC 002

PLE dimension = 0.740'' - 0.820''

The test specifications apply to testing of the injection-pump assembly with the genuine engine/nozzle-and-holder

assembly

Note remarks

: MAC 11,1 j2 Test sheet

Edition : 6.8.50 : 23,3,90 Replaces : ISC-4113 Test oil

Combination no. : 9 400 231 211

Injection pump

Pump designation : PES6P120A720RS6016-1

: 9 410 231 034 EP type number

Governor

Governor design. : RQV325...850PA721-2K

Cust. part no.

Customer-spec. information Customer : MACK

: E6-300 4VH Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 0.2

Test nozzle holder assembly

Opening

: 295...305 pressure, bar

: 9 681 230 735 Test Lines

Outside diameter

x Wall thickness

: 6.35x1.70x840.0 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2.95...3.05 Prestroke mm

: (2.90...3.10)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 18.3...18.5

100 s: (18.1...18.8)

cm3 : 0.5Spread

100 s: (0.75)

rpm : 325 2nd speed

Rack travel in mm: 4.70...4.90 Del.quantity cm3/: 2.9...3.5 100 s: (2.7...3.7)

cm3 : 1.0Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL 1st speed

rpm : 250

: 0.40...0.90 travel mm

rpm : 350 2nd speed

travel mm : 1.85...2.35

rpm : 450 3rd speed

: 2.90...3.40 travel mm

rpm : 850 4th speed

: 6.40...6.40 travel mm

rpm : 1000 5th speed

: 8.10...8.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1070

Speed Rack travel in mm: 9.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 183.5...185.5

1000 : (181.0...188.0)

RATED SPEED

1st version

Control Lever

position degrees: 54...60

1st rack travel in: 12.40 rpm : 890...900 Speed

2nd rack travel in: 4.00

: 995...1025 Speed rpm

4th rack travel in: 1050

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 10...16

Testina:

Speed **L'DW** : 250 Minimum rack trave: 6.60 rpm : 325 Speed

Rack travel in mm : 4.70...4.90 Rack travel in mm : 2.00

: 430...490 Speed rom

TORQUE CONTROL

Dimension a mm :?

Torque control curve – 1st version

rpm : 850 1st speed

Rack travel in m: 13.40...13.50

rpm : 700 2nd speed

Rack travel in m: 13.80...13.90

3rd speed rpm : 600

Rack travel in m: 14.25...14.35

rpm : 500 4th speed

Rack travel in m: 13.75...13.85

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 700 nom

Del.quantity cm3/: -1000 s: (197.0...211.0)

rpm : 600 Speed

Del.quantity cm3/: 217.0...226.0 1000 s: (215.0...228.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

rpm : 890...900 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 180.0...220.0

1000 s: (170.0...230.0)

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 4.70...4.90

Del.quantity cm3/: 29.0...35.0

1000 s: (27.0...37.0)

Remarks:

: MACK # 313 GC5150P15

See VDT-I-MAC 002

PLE dimension = 0.740'' - 0.820''

The test specifications apply to testing of the injection pump assembly with the genuine engine/nozzle-and-holder

assembly

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DEE 7,6 g 8 Test sheet : 08.06.90 Edition Phasina : 1.2.90 Replaces Tolerance + - ° Test oil : ISO-4113 Combination no. : 9 400 231 236 Injection pump BASIC SETTING Pump designation : PES6P110A720RS3083-1 EP type number : 9 410 231 027 1st speed Covernor Governor design. : RSV475...1050P2A455-: 9 420 234 172 Governer no. Customer-spec. information : JOHN DEERE Customer Spread : 6466A Engine 1st version kW : 151.0 : 2100 Rated speed 2nd speed TEST BENCH REQUIREMENTS Test oil Spread inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Speed Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar 1st version : 1 680 750 015 Test lines Speed Del.quantity Outside diameter x Wall thickness Spread cm3 : 6.00x3.00x600 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever BEGINNING OF DELIVERY Test pressure, bar: 27...29 Testina:

: 3.45...3.55

: (3.40...3.60)

Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 : 0.50 (0.75) Time to cyl. no. : 1 rpm: 1050 Rack travel in mm : 11.70...11.80 Del.quantity cm3/: 13.6...13.9 100 s: (13.4...14.2) cm3 : 0.4100 s: (0.7) rpm : 475.0 Rack travel in mm: 5.9...6.1 Del.guantity cm3/: 1.4...1.9 100 s: (1.2...2.2) cm3 : 0.4100 s: (0.7) GUIDE SLEEVE POSITION Control-Lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ?FULL LOAD DELIV. AT FULL LOAD STOP rpm : 1050 : 136.5...139.5 1000 : (134.0...142.0) : 4.00 1000 : (7.50) position degrees: 38...46 1st rack travel in: 10.70 rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Prestroke mm

rpm : 1145...1155 Speed

3rd rack travel in: 4.00

rpm : 1150...1170 Speed

4th rack travel in: 1250

rom : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 475 Rack travel in mm : 5.5

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm: 475 Rack travel in mm: 5.90...6.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.70...11.80

2nd speed rpm : 700

Rack travel in m: 12.10...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del.quantity cm3/: 139.5...143.5 1000 s: (136.5...146.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 150.0...170.0 1000 s: (145.0...175.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 475

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 14.5...19.5 1000 s: (12.0...22.0)

Spread

cm3 : 4.50 1000 s: (7.50)

Remarks:

: JOHN DEERE # RE30252

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 12° cam angle after start of delivery cyl. 1.

APPLICATION

Excavator

Note remarks

: MB 5,7 n 20 Test sheet Edition : 26.02.90 : 3.3.88 Replaces Test oil : ISO-4113

: 9 407 083 211 Combination no.

Injection pump

Pump designation : PES6A90D410RS2293

EP type number : 0 410 896 031 Governor

Governor design. : RSV350...1050A1B1086

: 9 420 083 138 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M352A Engine

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 003

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25

: (2.10...2.30)

Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6-

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 8.40...8.50

Del.quantity cm3/: 4.4...4.5

100 s: (4.2...4.7)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 350.0 Rack travel in mm : 7.4...7.6

Del.quantity cm3/:?

100 s: (?)

cm3 : 0.2Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050Speed

Del.quantity : 44.0...45.0 1000 : (42.0...47.0)

: 3.00 Spread cm3

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 54...62

Testing:

1st rack travel in: 7.40

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1120...1150 Speed

4th rack travel in: 1400

Speed rom : 0.30...1.70

LOW IDLE 1

Control lever position degrees: 24...32 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 7.0 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm: 7.40...7.60 Rack travel in mm: 2.00 Speed rpm: 575...635 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 8.40...8.50 2nd speed rpm : 500 Rack travel in m: 10.90...11.00 4th speed rpm : 800 Rack travel in m: 9.70...9.90 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/ : 57.0...59.0 1000 s: (54.5...61.5) rpm : 800 Del.quantity cm3/: 50.5...52.5 1000 s: (48.0...55.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 7.40 rpm : 1090...1100 Speed STARTING FUEL DELIVERY : 100 Speed COM Rack travel in mm : 13.70...14.30 LOW IDLE Speed rpm : 350
Rack travel in mm : 7.40...7.60
Spread cm3 : 2.50 1000 s: (4.50) Remarks:

APPLICATION

N21

Wheel loader